

A LONGITUDINAL APPROACH TO THE EFFECTS OF
PARTNER FIRM CHARACTERISTICS, THE ENVIRONMENT,
AND MUTUAL TRUST ON SYNERGISTIC OUTCOMES
IN LONG TERM, BUYER-SUPPLIER RELATIONSHIPS

By

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A DISSERTATION PRESENTED TO THE GRADUATE SCHOOL
OF THE UNIVERSITY OF FLORIDA IN PARTIAL FULFILLMENT
OF THE REQUIREMENTS FOR THE DEGREE OF
DOCTOR OF PHILOSOPHY

UNIVERSITY OF FLORIDA

1995

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To my grandparents, with gratitude.

ACKNOWLEDGMENTS

This dissertation was not the result of my efforts alone. It was supported by financial grants from the Marketing Science Institute (Clayton and grant #4-882), and data support from the Institute for the Study of Business Markets.

My committee members and James Algina provided me with critical comments during the initial stages. Their insights strengthened the positioning and overall contribution of the dissertation. Michael Browne, Claes Fornell, and Prasad Naik gave helpful comments concerning the analysis. Joffre Swait and Mark Schmit were particularly helpful in the final stages of the analysis, getting me through some panic-stricken moments. Kathy Brown and Margaret Jones have been an invaluable help in the implementation of this study as well as numerous other projects.

There are also many people in the department who have impacted me throughout the doctoral program with their advice, insight, and friendship. I am a richer person for having known these individuals: Susan Fournier, Joffre Swait, Alan Sawyer, Rich Lutz, John Lynch, Joe Alba, Steve Shugan. It goes without saying that all of the doctoral

students have been exceptional cohorts--we are forever bound by our "Florida experience."

The one person who has influenced me the most during the program has undoubtedly been Bart Weitz. If I had to characterize the advisor best suited for me, it would have to be Bart, straight down the line. He has always given me the freedom to handle situations and solve problems in my own way, without abandoning me or allowing me to walk down roads of futility. Working with him has taught me much about the research process--from the conceptualization, to the implementation, the analysis, and the selling. His advice and insights, encouragement and support, have helped me to grow personally and as a scholar. If I eventually become even half the researcher, teacher, scholar, and mentor that he is, I will have had a great career.

There are a number of people in my personal life who have been with me through the ups and downs, the good and bad, the pretty and ugly. Their friendship has been invaluable to me: Chansone Durden, Susan Lewis, Stacey Garnett, Tamar Riley, Suzanne Quintero, Chrissy Conkling, David Allegood. It is my privilege to know them.

My parents and siblings have been a wonderful support throughout the program, always praying for the best for me and encouraging me to take hold of the good opportunities that come my way. There are not enough words to describe how much each of you mean to me. Without my grandparents, my education would have been impossible--emotionally,

financially, practically. If a star fell out of the sky for every good thing they've done for me, every kind word they have said, every prayer that has been said for me, the sky would be empty.

Finally and most importantly, I thank my God and Savior, Jesus Christ. He has been more than good to me, more than faithful. Apart from Him I can do no good thing.

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Abstract of Dissertation Presented to the Graduate School
of the University of Florida in Partial Fulfillment of the
Requirements for the Degree of Doctor of Philosophy

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August, 1995

Chairman: Barton A. Weitz
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This dissertation examines the antecedents and consequences to the development of strategic advantage in long term, buyer-supplier relationships. A conceptual framework involving potential antecedents--partner firm characteristics, characteristics of the environment, and mutual trust--is hypothesized to lead to the development of strategic advantages over competing dyads in the marketplace. This activity expands the level of joint benefits available to the dyad and enables it to achieve results of greater consequence than either firm would have been able to accomplish individually.

This process is examined over time via a longitudinal survey methodology. Over 200 buyer-supplier dyads of four

Fortune 50 firms participated in the study; each individual completed two surveys on the relationship, administered one year apart. Data analysis was completed using latent variables and structural equation modeling techniques.

The results point to the importance of goal compatibility, complementary competencies and mutual trust as key factors in the decision to develop strategic advantages together. Goal compatibility provides assurance of non-opportunistic behavior early in the relationship and a reason for relationship continuity afterwards. Complementary competencies communicate powerful assurances of the payoffs from developing strategic advantages, particularly for buyers. Trust is also shown to play a dynamic role in facilitating relationship outcomes and shaping member perceptions throughout the process, despite the fact that it becomes less important in the firms' decision to work closely together over time. The process of developing strategic advantages involves learning about the other member that goes beyond a surface level knowledge. As a result, idiosyncratic assets created in the process tend to decrease complementary competencies of the member firms. In general though, the active development of strategic advantages is shown to lead to synergistic results such as strategic advantages over competing dyads, increased joint profits, and the creation of idiosyncratic assets.

CHAPTER 1 INTRODUCTION

The development of competitive advantages--positions of superior performance--is key to a firm's survival. Scholars and corporate strategists emphasize that firms can attain sustainable, competitive advantages through product differentiation, brand loyalty, technological superiority, and supplier relationships. However, we live in a time in which these bases can be quickly eroded. The number of new products introduced each year increases while the number of true product innovations decreases; the result is rapid product parity. The growing strength of private labels and mismanagement of brand extensions has contributed to a decline in national brand loyalty. Finally, the speed by which faster and more powerful advances in technology are developed enables firms to leap frog competitors, converting a disadvantage into an advantage.

As a result, there is a growing interest among both practitioners and academics in strategic advantage developed through value chain relationships. A value chain describes the path that products take from the raw material state to the finished product state before they are ultimately sold to final consumers.' Each firm in the chain adds value to the product before passing it downstream to the next member. For

example, a raw materials supplier might harvest or collect a raw material and break it down into salable units for manufacturers. The manufacturer then processes these units, often changing the form of the product and bringing it to its finished state. The product is then sold to final customers or distributors who would further process the product (e.g., repackage the product in smaller, salable quantities, provide services) and sell it to retailers or individual consumers.

Historically, each firm in the value chain would seek to maximize its individual position, extracting the lowest costs possible from its suppliers and maximizing its price to customers. However, as industries downsize, competition increases, and the players who remain are those who have learned how to increase the efficiency and effectiveness of the whole chain. Companies in successful value chains take a more holistic view of the process of bringing a product to market, demanding that every member in the chain strive to coordinate its efforts and increase the efficiency of the entire chain of firms.

Customers will demand low-cost products from manufacturers, who in turn, demand low-cost products from their suppliers. Firms work together to creatively devise ways to accomplish their parts in the value chain more efficiently and effectively than before. In this way, the chain of companies is able to create long term, strategic advantages over other value chains for competing products. Such advantages are particularly long-lasting relative to

advantages created through product differentiation, brand loyalty, or technological superiority, because they are created in the context of a dyadic exchange relationship that is inherently difficult for competitors to observe and duplicate.

In this chapter, the need for better understanding how strategic advantages are created in the value chain for a product is articulated. The chapter begins with an example of a value chain that has managed to create strategic advantages through its buyer-supplier relationships. The discussion then turns to needed research on the development of strategic advantages in value chain relationships, and culminates in a statement of the purpose and scope of this dissertation in advancing our understanding of this critical area.

Strategic Advantage Through Buyer-Supplier Relationships

Consider the following example. Relationships between the Bose Corporation, a maker of high-fidelity systems, and its suppliers are so close that their suppliers are practically treated like Bose employees (Bleakley 1995). Supplier representatives have desks near the factory floor. Their badges let them roam where they choose, attend production-status meetings, stop by the research lab, and click sales forecasts into computers. They write sales orders and pass the bills to Bose. The payoffs for Bose include reduced inventories, elimination of redundant

purchasing agents, and gains in cost-saving tips as a result of their suppliers' familiarity with the company. In return, the suppliers are able to maximize their present sales and potential future sales from Bose. These suppliers are also expected to treat their own vendors in a similar way. As a result, the companies comprise a supply chain that cuts costs all along the value-added chain for their products.

By fabricating their supplier relationships in this way, Bose and its suppliers are able to achieve cost, performance, and learning advantages over competing buyer-supplier dyads. Essentially, the firms have expanded the "size of the pie"--the pie of potential profits available to them--by increasing sales and/or decreasing costs and have achieved results of greater consequence than each would have been able to earn individually. The resulting competitive advantages are rooted in the combination of firm-specific resources and competencies that are brought to bear on the relationship in conjunction with "causal ambiguity" (Reed & DeFillipi 1990). Causal ambiguity refers to the "basic ambiguity concerning the nature of the causal connections between actions and results" (Lippman & Rumelt 1982). This ambiguity surrounding the buyer-supplier relationship involves tacit, complex, and specific information of the two firms. Since it is unobservable by competing dyads, the resulting competitive advantages accruing to the dyad are sustainable over a long period of time.

It is important to note the long term nature of such close supplier relationships. In order for firms to engage in the strategic planning that leads to sustainable competitive advantages, the members must have a history of shared exchange. This also helps to reduce uncertainty about the other's intentions and motives and provides opportunity for learning between them. The members need to be able to learn and react to successive actions (or lack of actions) of the other member over time so that a specific history is built within the dyad (Hinde 1979). This history provides the members with information that is detailed, trustworthy, rich, accurate, and cheap; it also asserts a strong influence on relationship outcomes, individual perceptions, evaluations, future expectations and present behavior (Anand & Stern 1985; Granovetter 1985). Hence, the focus of this study is on long term relationship dynamics between buyers and suppliers in ongoing relationships.

Clearly, relationships like the Bose example are not always successful. The interdependencies formed between the companies represent both the bases for the development of strategic advantages and the opportunities to exploit each other. And this does commonly happen (Bleakley 1995). However, the research to date on interorganizational exchange provides little insight on when such close relationships do or do not work. One of the goals of this study is to provide insights into the factors that make such relationships work.

Needed Research on Strategic Advantage

Despite the possibility of attaining strategic advantages through buyer-supplier relationships there is surprisingly little systematic work on how buyers and suppliers develop and maintain strategic advantages together. The primary contributors to date have been consulting companies.

In marketing, much of the work on this topic has focused on characteristics of satisfactory relationships (i.e., J. C. Anderson & Narus 1990; E. Anderson & Weitz 1989; Crosby, Evans, & Cowles 1990; Heide & John 1990), without explicitly focusing on the attainment of strategic advantage. In the past five years alone we have witnessed an outpouring of studies on topics such as trust (Andaleeb 1992; Ganesan 1994; Moorman, Zaltman, & Deshpande 1992, Moorman, Deshpande, & Zaltman 1993), performance (Kumar, Stern, & Achrol 1992; Noordewier, John, & Nevin 1990), commitment (E. Anderson & Weitz 1992; Morgan & Hunt 1994), and communication/influence (Mohr & Nevin 1990; Boyle, Dwyer, Robicheaux, & Simpson 1992; Ganesan 1993; Scheer & Stern 1992), as key aspects of strong relationships. The understanding of how strategic advantage is developed between independent firms in the value chain represents an opportunity for marketing scholars to lead or at least participate in the evolution of this new form of interorganizational exchange.

In addition to understanding how strategic advantage is developed between buyers and suppliers, there is a need to understand interorganizational relationship dynamics over time. Despite the constant calls for longitudinal studies and the recognition that relationships have their own life-cycles and phases (cf., Dwyer, Schurr, & Oh 1987), no one has ever attempted to examine a sample of ongoing buyer-supplier relationships at two points in time. As a result, there are unanswered questions about the correct causal ordering of variables. For example, a commonly debated issue regards the relationship between trust and idiosyncratic assets. Is it the case that the development of trust leads firms to make irretrievable asset investments into the relationship or does the presence of these assets create greater trust? Because of the cross sectional nature of industrial buying research, proponents of each view are able to point to empirical studies that support both sides of the question.

Purpose and Scope of the Dissertation

The purpose of this dissertation is to address the gap in our understanding of the development of strategic advantage in long term, buyer-supplier relationships. As a first step, a conceptual framework involving potential antecedents and consequences of developing strategic advantages is presented. Although clearly not exhaustive in its consideration of all potential antecedents and consequences, the framework highlights key constructs

identified from past work in industrial organization, economics, marketing, law, and social psychology literatures. This framework is then examined over a one year time period among a sample of approximately 200 industrial buyer-supplier dyads to gain insights into the long term dynamics of these relationships.

The unit of analysis throughout this study is the dyad, comprised of a buyer and a supplier. The focus is on long term, vertical relationships between financially independent firms near the beginning of the value added chain for a product (e.g., the raw materials supplier and the manufacturing buyer). These firms do not rely on or create unified financial systems or other forms of bureaucratic control to oversee the relationship. Hence, joint ventures, horizontal relationships, and vertically integrated relationships are not considered in this study. Joint ventures occur when two firms come together and create a separate firm able to take advantage of an immediate (and sometimes temporary) competitive advantage, such as technology transfer, access to markets, etc. Such relationships are usually terminated when either partner is able to pursue the opportunity alone. Horizontal relationships between competitors are likely to involve different dynamics than those between vertically related independent firms. On the other hand, vertically integrated relationships rely on a common, bureaucratic mechanism to oversee the relationship.

Organization of the Dissertation

The dissertation is organized into six chapters. A brief description of each chapter follows.

Chapter 1 notes the importance of relationships in the value added chain in providing sustainable competitive advantages to members. As seen in this chapter, there is an opportunity for marketers to lead the way in understanding how strategic advantage is achieved in long term, vertical relationships between independent firms in a value added chain. There is also a need for understanding these relationship dynamics over time and their implications for the long-run future of the relationship.

Chapter 2 is a review of the research applicable to long term, interorganizational relationships. Three major paradigms commonly used in marketing are examined and their contributions and shortcomings in understanding long term, buyer-supplier relationship dynamics are outlined. Key constructs from each of these paradigms are reviewed in greater detail: idiosyncratic assets, trust, and environmental uncertainty. This discussion provides the backdrop upon which the conceptual framework of the study is structured.

Chapter 3 describes the conceptual framework of the dissertation. In this chapter, aspects of partner firm compatibility, environmental uncertainty, and interpersonal factors are defined and reviewed. Their relation as

antecedents to the firms' willingness to engage in strategic advantage development activities is articulated. The synergistic consequences examined in this study are also highlighted. Finally, the longitudinal model is developed and hypotheses are presented.

Chapter 4 describes the methodology used in the dissertation. Issues concerning measurement of the phenomena of interest underly the decision to use a multiple key informant approach. The data collection procedure, sample characteristics, and information on the research setting are specified in detail. The questionnaires and measure development process are described, and preliminary measurement model results from the first wave of data collection are presented in this chapter.

Chapter 5 presents the statistical analysis strategy and results in detail. An incremental model building approach is taken, in which dyadic, cross sectional, and longitudinal measurement models are first estimated. This is followed by estimation of the causal structural models, beginning at the cross sectional level and then the longitudinal level. Alternative, saturated models are also explored in determining the adequacy of the hypothesized theoretical model.

Chapter 6 provides a discussion of the results and a summary of the significance of the dissertation. In this chapter, limitations of the study, recommendations for future research, and implications for theory and management are specified.

CHAPTER 2 REVIEW OF THE LITERATURE

Overview

Research on long term, interfirm relationships in marketing has predominantly drawn upon three theoretical frameworks: transaction cost analysis (Coase 1937; Williamson 1975, 1981, 1985), market/relational exchange (Macaulay 1963; Macneil 1980), and the political economy paradigm (Benson 1975; Stern & Reve 1980). In this chapter the basic tenets of each approach are reviewed and their limitations in understanding long term, interorganizational relationship dynamics are noted. A central construct from each paradigm is highlighted in greater depth: idiosyncratic assets, trust, and environmental uncertainty. These constructs provide the fundamental building blocks for the conceptual framework presented in the next chapter.

Transaction Costs Analysis

Theoretical Overview

Transaction cost analysis (TCA) traces its roots to the writings of Commons(1934) and Coase (1937), with Williamson (1975, 1981, 1985) leading the development of this stream of thought within the past twenty years. Although there have

been a number of scholars who have delineated the shortcomings of TCA (e.g., Bradach & Eccles 1989; Granovetter 1985; Oberschall & Leifer 1986; Perrow 1981, 1986; Powell 1990; Robins 1987; Williamson 1991), the framework has endured over the years in the economics literature and has provided the conceptual basis for a number of channel research studies (i.e., E. Anderson 1985; E. Anderson & Weitz 1986; Dwyer & Oh 1988; Heide & John 1988, 1990; John 1984; John & Weitz 1989).

Williamson draws on literature in economics, organizational theory, and contract law to formulate the TCA framework. TCA describes the organization of economic activity as a decision between market exchange and vertical integration. Market exchanges are one-time, spot transactions based on the efficiencies of open, competitive markets. Buyers use price as a primary criterion for their purchases and multiple competing suppliers to insure that goods and services are purchased at the lowest costs. Vertical integration occurs when the firm internalizes the market transaction and imposes a bureaucratic control mechanism to oversee the exchange.

The decision to engage in market exchange or vertical integration depends on the transaction costs associated with each option. These costs vary as a function of environmental uncertainty, asset specificity, and transaction frequency. When any of these dimensions are high, it becomes more efficient for a firm to expand its boundaries and internalize

the transactions and resource flows that previously occurred in the marketplace. Market transactions are appropriate when the environment is stable and the products are standardized (not specialized through transaction specific investments for a specific firm).

Limitations of TCA

The TCA logic is well suited for the explanation of some forms of interorganizational exchange strategy. However, it is very limited in its ability to explain long term forms of interorganizational exchange for a number of different reasons. First, TCA provides an explanation for the occurrence of competitive market exchange and vertical integration only and does not address alternative forms of interorganizational exchange governance modes that may blend aspects of markets and bureaucratic control mechanisms (Bràdach & Eccles 1989; Powell 1990; Williamson 1991; Zajac & Olsen 1993).

In today's business environment, firms have developed a wide variety of governance options that are neither markets nor bureaucratic control forms. Consolidation and downsizing are the dominant trends in a number of industries, resulting in fewer and larger product suppliers. The increased need for specialized products and the reduction in the number of alternative suppliers make it increasingly attractive for buyers to engage in noncompetitive market exchanges.

There is also a growing disenchantment with vertical integration. Firms have moved away from the acquisition and management of unrelated firms and refocused their attentions on their core business, recognizing that greater financial returns can be gained by exploiting unique sources of competitive advantage. Collectively, these trends point to a movement away from a TCA-based view of exchange to alternative exchange forms between independent firms governed by contracts (i.e., franchising) and/or relational norms (i.e., trust) (Weitz & Jap 1995).

Second, TCA emphasizes a single-party, cost-minimization view of exchange and neglects the interests of the other firm (Zajac & Olsen 1993). Many interfirm exchanges involve multiple, voluntary transactions between two firms over a long time frame. These firms are seeking to create and sustain an exchange relationship that is mutually beneficial to both firms while simultaneously seeking to satisfy their own individual interests. Although this does not necessarily mean that firms will act altruistically toward their exchange partners, the implication is that the firms do not want the relationship to be terminated prematurely due to one partner's dissatisfaction with the relationship. Hence, each firm's actions are not strictly a function of its transaction costs alone.

Third, TCA emphasizes structure while neglecting processes in interorganizational exchange (Robins 1987; Zajac & Olsen 1993). More specifically, the notion of asset

specificity, or highly specialized assets that lose productive value outside the relationship, is analogous to the notion of exit barriers (cf., Caves, 1987) in the industry structure literature. In the latter case, exit barriers are a market structure that influences market conduct and performance. With TCA, specific assets form the transaction's structure, which in turns influences the firm's conduct and performance in the exchange relationship. In both cases, these structure characteristics create transformation processes that fundamentally change ultimate performance. The developmental processes that bring about changes in interorganizational exchange performance are never articulated by TCA.

TCA also ignores the potential influence of social relationships in interorganizational exchange (Bradach & Eccles 1989; Granovetter 1985; Maitland, Bryson, & Van de Ven 1985; Perrow 1986). TCA assumes that humans have limited information processing capability and limited ability to formulate and solve complex problems. They are motivated to behave opportunistically. Hence, vertical integration is suggested as a mean by which to guard against human limitations, because the bureaucratic governance structure provides greater control over employee actions, motivation, and incentives. However, the establishment of bureaucratic control does not necessarily produce trust. Personal relations, social norms, and the resulting obligations inherent in them can often discourage opportunism on a

consistent basis, apart from institutional arrangements.

Information from such relationships is a major determinant of behavior because such information is often cheap, richly detailed, trustworthy, and overlaid with strong social expectations of trustworthiness, future interactions, and abstention from opportunism.

Relational Exchange

Theoretical Overview

Macaulay's (1963) seminal article on the use of legal contracts in business relationships points to the importance of social and relational norms as well as the impact of trust and commitment as means of governing exchange. Building upon this notion, Macneil (1978, 1980) draws on modern contract law relationships to suggest that the nature of the interpersonal relationship surrounding a contract is paramount. This relationship provides important social norms that aid in the governance of contractual behavior, provides a reference for dispute resolution, and a setting that fosters a desire for relationship continuance. This is somewhat analogous to Ouchi's (1979) concept of a clan mechanism. In a clan, a normative process occurs in which members adopt the norms of the larger system through socialization efforts. Hence, deviance or opportunism is dealt with through self-control based on internalized values.

Macneil distinguishes between discrete and relational transactions. Discrete transactions are market exchanges,

characterized by limited communications and narrow informational content focused on the nature of the exchange. Discrete relationships account for only a limited number of relationships involving specialized functions within an economy. Relational transactions, the predominant relationship type, occur over time and are viewed in terms of a history and anticipated future. Macneil highlights differences between the two types of exchange in terms of the timing of the exchange, the number of parties involved, obligations, personal relations, contractual solidarity, transferability, cooperation, measurement and specificity, power, and division of benefits and burdens.

Although Macneil did not provide operational definitions for these dimensions, researchers have made their own interpretations. In marketing, there are a number of empirical studies that have applied Macneil's relational contracting concepts to an interorganizational context (i.e., Dwyer, Schurr, & Oh 1987; Frazier, Spekman, & O'Neal 1988; Kaufmann & Dant 1992; Kaufmann & Stern 1988; Noordewier, John, & Nevin 1990; Palay 1984). Relational exchanges have been compared to bilateral power systems (Bonomo 1976), in that individual goals are reached through joint accomplishments, and concern for the long-run benefit of the system restrains individual tendencies to pursue self-interests opportunistically. Relational exchanges offer advantages associated with both a market exchange and a

vertically integrated arrangement: scale economies obtained from dealing with independent specialists and cross-functional coordination.

Limitations of Relational Exchange

Relational contracting theory is useful in accounting for alternative forms of interorganizational exchange apart from market transactions and vertical integration. However, the relational paradigm, in contrast to TCA, fails to specify the conditions under which these alternative forms may occur or when they are appropriate, despite the fact that it is implicitly based on a recognized need to adapt relationships to changing circumstances (Heide 1994). Macneil (1980) fails to make explicit predictions in this respect, instead making only the general assumption that bilateral elements are required in order for parties to "project their exchange into the future."

Political Economy Paradigm

Theoretical Overview

The political economy paradigm (Benson 1975; Stern & Reve 1980; Wamsley & Zald 1973, 1976; Zald 1970a; Zald 1970b) was introduced during the 17th century to denote what is now known as economics. Over time, the paradigm has taken on different meanings, resulting in the development of literature streams such as radical political economy, the Chicago school of economics, etc., and has been shown to be

useful in the analysis of individual organizations (Zald 1970b) and interorganizational networks (Benson 1975). The paradigm integrates concepts from social exchange, the behavioral theory of the firm, and transaction cost economics.

Stern and Reve (1980) were the first marketing researchers to extend the political economy framework into the context of channel dyads. The social system is viewed as the resulting interaction of internal and external political economies and is thought to affect behavior and performance of firms in the system. The dyad's internal political economy consists of an economic structure that links the members, processes by which terms of trade are established, a sociopolitical structure that establishes a pattern of power-dependence relations, and processes that determine dominant member sentiments (e.g., cooperation, conflict). The external political economy includes factors such as the current economy (i.e., the nature of the industry's vertical and horizontal markets, the prevailing and prospective environment), and the external sociopolitical system.

The heart of the political economy approach rests in simultaneous analysis of the power and control system of the channel and productive aspects that transform inputs to outputs with an emphasis on interdependencies. Centralized planning processes increase efficiency and effectiveness, but also create interdependencies that prevent the dyad from reacting quickly to changes in the environment. When power

relations between the members are balanced, cooperative behavior will dominate (cf., Kaplan 1957); the more the relationship is characterized by cooperative behavior, the greater the profits attainable to the firms as a whole.

Subsequent investigations of the political economy framework in marketing channels have focused on the impact of environmental variables such as environment type (Achrol, Reve, & Stern 1983), uncertainty and dependence constraints (Dwyer & Welsh 1985), and determinants of decision-making uncertainty (Achrol & Stern 1988) on interorganizational responses. Mohr and Nevin (1990) provide a theoretical model of communication in which an individual member's influence strategy is moderated by the impact of channel conditions (e.g., structure, climate, and power) on channel outcomes (e.g., coordination, satisfaction, commitment, and performance).

Limitations of the Political Economy Paradigm

Approaches such as the political economy paradigm and Frazier's (1983) interorganizational exchange framework are commendable in their attempts at completeness and their focus on the impact of environmental factors and processes. Additional strengths of the paradigm include its attention toward authority and control patterns, conflict and conflict management procedures, and internal and external determinants of institutional change (Arndt 1983). On the downside, the political economy paradigm is overly general and basic. It

serves primarily as a method for classifying constructs rather than developing theories for the relationships between them. Additionally, several of the constructs and relationships are difficult to tap with standard measurement tools such as cross sectional surveys. Arndt (1983) notes that the approach lacks an emphasis on channel performance or goal achievement with respect to efficiency and effectiveness; this is also evidenced by Reve's (1980) failure to find a significant relationship between channel structure and performance.

Key Contributions of the Frameworks

TCA and the relational exchange paradigms are valuable in that they elucidate potential governance modes for interorganizational exchange. The political economy approach draws attention to the need to understand the whole channel social system when investigating relationship dynamics. However, all of the frameworks leave unanswered the question of how the interfirrm relationship can be used to "expand the size of the pie" of potential benefits available to the members and gain strategic advantages over competing dyads. As a first step in answering this question, the conceptual framework for this study uses three key constructs highlighted by TCA, relational, and political economy frameworks respectively: idiosyncratic assets, trust, and environmental uncertainty.

Idiosyncratic Assets

Asset specificity is a key construct in the TCA framework, increasing the potential cost of transacting between firms. Although it appears detrimental in the TCA framework, idiosyncratic assets can be used to promote two important aspects of interorganizational exchange: a basis for strategic advantage and relationship stability.

Strategic advantage. The development of idiosyncratic assets can enable the parties in a relationship to develop sustainable strategic advantages over competing relationships. These idiosyncratic assets are unique and cannot be easily observed or duplicated by competitors. For example, when Intel designs and produces a unique microprocessor that optimizes the performance of a new Ford automobile, the Ford automobile is able to provide superior value compared to a General Motors (GM) car using a standard microprocessor available to all automobile manufacturers. Both Ford and Intel benefit from the investment in this idiosyncratic microprocessor. Ford sells more cars and Intel sells the microprocessors used in the cars. To match the automobile performance achieved through the Ford-Intel relationship, General Motors must build a similar relationship with Intel or another microprocessor supplier to develop a microprocessor that optimizes its car design. Building such a relationship takes considerable time and

effort. Thus, the competitive advantage arising from the Ford-Intel relationship is not easily duplicated by competitive dyads.

Relationship stability. Idiosyncratic assets promote relationship stability because they provide meaningful signals to the other party that go well beyond verbal promises to work together over the long run. By creating idiosyncratic assets, the parties in the relationship will suffer adverse economic consequences in the event that the relationship ends. Thus, they act as credible signs of commitment to the relationship. E. Anderson and Weitz (1992) provide evidence that idiosyncratic assets are strongly associated with manufacturer and distributor commitment, as well as perceptions of other-party commitment.

Idiosyncratic assets also increase cooperative activities because they provide incentives to maintain the relationship (Williamson 1985). Since the assets lose value outside the relationship, firms are unlikely to engage in opportunistic behavior that might risk relationship dissolution. Idiosyncratic assets also facilitate expectations of relationship continuity and increase willingness to engage in joint activities (Heide & John 1990). Thus, these assets help to align the members' incentive structures and bring about relationship-stabilizing behaviors.

Trust

Much of the work on interorganizational exchange dynamics points to the importance of trust in developing and sustaining long term relationships (i.e., Andaleeb 1992; Bradach & Eccles 1989; Moorman, Zaltman, & Deshpande 1992, 1993; Morgan & Hunt 1994). There is a vast literature on the role of trust in interpersonal relationships (i.e., Boon 1994; Boon & Holmes 1991; Holmes 1991; Kelley & Thibaut 1978; Lewis & Weigert 1985a, 1985b; Luhman 1988; Silver 1989). Trust is widely acknowledged as a key social norm in governing and coordinating relational exchanges. It is particularly important in the development of strategic advantage in interfirm relationships because developing strategic advantages is a risky endeavor. Often, the parties are unable to specify in advance what the payoffs will be from working closely together. Reve (1980) reports that the development of joint programs is positively related to close interpersonal relationships. This result is echoed in the interpersonal relationship literature, where studies have shown that as a relationship develops, feelings of mutual responsibility for the other party's outcome increase, and parties explore mutually beneficial activities (Altman & Taylor 1973; Levinger 1980; Levinger & Snoek 1972; Taylor 1979). Hence, in strategic relationships, trust provides a powerful assurance to the individual members that they will receive their fair share of any resulting benefits.

Trust is a complex construct that affects the relationship in a variety of ways, full discussion of which is beyond the scope of this review. The literature on trust is vast and arguments over its precise definition are never ending. In light of this, suffice it to say that there are essentially three dominant views of trust: trust as reliable behavior (cf., Crosby, Evans, & Cowles 1990; Mohr & Spekman 1991), trust as motivation (cf., Gabarro 1987; Golembiewski & McConkie 1975), and trust as both reliable behavior and motivation (Andaleeb 1992; J. C. Anderson & Narus 1990; Deutsch 1958; Ganesan 1993; Lindskold 1978; Zucker 1986). In this study, trust is defined as the ability to reliably predict the actions of the other party in the relationship and the belief that the other partner will not act opportunistically if given the chance to do so.

This particular view of trust was chosen because prior field interviews with buyers in the marketplace indicated that their views of trust involve both aspects. Conceptualizations that view trust as solely past behavioral reliability or perceived motivation governing future behavior are impoverished in a buyer-supplier setting. These buyers contend that trust involves both the ability to accurately predict the other party's future behavior in a variety of contexts based on explicit past behaviors and an implicit understanding of the other party's motivations for future behavior. Hence, trust is viewed as an interpersonal, rather

than an interorganizational construct, and "the other party" refers to the focal boundary-spanning employee working for the other firm in the relationship.

Trust as reliable behavior. One critical aspect of trust is the belief that the partner's word is reliable and that he/she will fulfill an exchange obligation (Giffin 1967; Schurr & Ozanne 1985). In order to forecast party A's future actions effectively, party B must rely on a knowledge of party A's consistency of responses in the past. Party B's willingness to engage in trusting responses or actions will be made on the basis of these estimates; as long as the relationship's history remains positive, there exists a preference to interact with current, predictable partners rather than new or unfamiliar ones (Kelley 1983).

Trust as motivation. The second critical aspect of trust is the belief that a partner will act non-opportunistically if given the chance to do so (Bradach & Eccles 1989; Larzalere & Huston 1980; Rotter 1967). While the first aspect of trust refers to dependability in fulfilling explicit promises, this second aspect relates to the anticipated actions of the other party when novel situations arise.

As the dyad deals with problems, members infer each other's motives by their actions and responses as the relationship progresses through various stages. As attitudes, backgrounds, and motivations increase in similarity, the relationship becomes more satisfying, and

expectations of the other party facilitating one's goals are increased (Ross & Ferris 1981; Weiss 1978; Wexley, Alexander, Greenawalt, & Couch 1980). Thus, the parties anticipate that they will consider each other's best interest, even when explicit promises are not made.

Trust is a key aspect in relationships centered around the attainment of strategic advantage. Jap and Weitz (1994) show that such relationships have significantly higher levels of trust, idiosyncratic assets, commitment, dependence, time orientation, performance, goal compatibility, strategic development activities, confidential information exchange, and risk-taking compared to alternative relationship types.

Environmental Uncertainty

One important characteristic of the political economy paradigm is the focus on the external environment surrounding the dyad. This is likely to be an important factor in deciding whether to work closely with a buyer or supplier, because when the environment is uncertain, decision-making can be particularly difficult and complex. The work on environmental effects on channel dyads is sparse when compared to the organizational behavior literature. In that literature, organizations will react to environmental conditions in an effort to protect themselves from external forces and cope with environmental demand (Thompson 1967; Zajac & Shortell 1989).

Although there has been a long debate on how to best measure environmental forces (Boyd, Dess, & Rasheed 1993; Downey, Hellriegel, & Slocum 1975; Lawrence & Lorsch 1967; Snyder & Glueck 1982; Tosi, Aldag, & Storey 1973), there is some consensus on the three central dimensions of environmental uncertainty (Dess & Beard 1984): munificence, dynamism, and complexity.

Munificence. Munificence is the extent to which the environment can support sustained growth in terms of absorbing and providing the dyad with necessary resource opportunities (Starbuck 1976). In the channels literature, this has come to refer to demand uncertainty, or the extent to which the demand for channel products is unstable and difficult to predict over time (Achrol, Reve, & Stern 1983; Etgar 1976; Guiltinan 1974; Lawrence & Lorsch 1967; Weick 1976).

There have been a number of authors who point to the importance of demand uncertainty on organizational behavior (e.g., Aldrich & Pfeffer 1976; Burns & Stalker 1961; Emery & Trist 1965; Lawrence & Lorsch 1967; Pfeffer & Salancik 1978; Terreberry 1968; Thompson 1967). The general consensus of these studies is that as demand becomes more uncertain and difficult to predict, organizational systems become decentralized, with a focus on lateral interactions and communication networks. When the environment is munificent--there exists high potential for economic growth, strong consumer demand, etc.--then there is less environmental

uncertainty, and hence, less incentive for vertical coordination (Achrol & Stern 1988; cf., Achrol, Reve, & Stern 1983; Dwyer & Welsh 1985).

Dynamism. Dynamism refers to change that occurs frequently and is difficult to predict. When the external environment is extremely dynamic (i.e., marketing practices, competitor strategies, and consumer preferences are constantly changing), then it is difficult for member firms to manage long-range business planning, coordination, product-mix, and inventory decisions. For example, when the partnering dyad faces a number of competitors that vary in size and resources, there exists a great deal of uncertainty in predicting behavior of competing dyads.

Complexity. Complexity involves both the heterogeneity of external forces affecting resources and their levels of interconnectedness and concentration in the environment. For example, a heterogeneous environment might occur if consumers are dissimilar in terms of social background, needs, and preferences. In this case, the formulation of strategic programs and marketing responses becomes more difficult (Dwyer & Welsh 1985). Alternatively, a competitive field that is extremely interconnected or concentrated (i.e., a high level of competitor domination) increases environmental complexity and the need for strategic activities. When heterogeneity is high, member firms tend to increase cooperative behavior and develop closer linkages with their partners (Achrol et al. 1983). Additionally, Etgar (1976)

has found that as the number of competitive dyads that carry similar or competing brands increases, channel dyads are more likely to work closely together as a unit.

In the face of environmental uncertainty, or in other words, low munificence, high dynamism, and high complexity, dyads that mutually work together (by being flexible, willing to adapt, and share information) are in a better position to cope with environmental uncertainty than dyads in which both members individually attempt to deal with the environment.¹ Such partnerships enable the partnering firms to adjust their strategies quickly, thereby improving dyadic performance and reducing opportunism (Achrol et al. 1983; Heide & John 1990).

Summary

In this chapter, three paradigms for understanding interorganizational exchange have been presented. Transaction cost analysis was developed as an explanation for a firm's decision to engage in market exchange or vertical integration. Relational exchange is useful in understanding intermediate forms of long term exchange between autonomous companies. Both of these frameworks emphasize governance modes: competitive markets, bureaucracies, and social norms.

¹ Although one might make the argument that close relationships result in decreased flexibility and should thus be avoided in the face of environmental uncertainty, the literature has consistently shown the opposite to be true. An explanatory moderating variable for predicting when firms should and should not work closely is presented in the next chapter.

In contrast to these, the political economy paradigm calls for understanding of the entire channel social system surrounding the dyad.

All three frameworks fail to address the issue of how interorganizational relationships can be used as a basis for the attainment of strategic advantages over competing dyads. However, each provides key constructs that are useful starting points: idiosyncratic assets, trust, and environmental uncertainty. Idiosyncratic assets enable the attainment of strategic advantage and facilitate relationship stability. Trust is key in providing assurance of fair payoffs from working together. Finally, environmental uncertainty leads member firms to work closely together in order to cope with environmental demands.

CHAPTER 3 CONCEPTUAL FRAMEWORK

Overview

In this chapter, the conceptual framework for the dissertation is advanced. Characteristics of the partner firm, environmental uncertainty, and interpersonal characteristics are hypothesized to lead firms to work closely together to create strategic advantages that "expand the size of the pie" between them. The development of strategic advantages results in synergistic outcomes--the attainment of sustainable advantages over competing dyads and subsequent increased joint profits--and leads to the creation of idiosyncratic assets. An overview of the basic strategic advantage process is depicted in Figure 3-1. The chapter concludes with an elaboration of this basic model over time.

Developing Strategic Advantages

The central goals of this study are to identify the factors that lead independent firms in long term, value chain relationships to create strategic advantages together and the payoffs from doing so. Hence, the central construct in the framework is the active development of strategic advantages. This behavior is formally defined as, "the extent to which

the dyad engages in activities aimed at achieving strategic advantages" (Jap & Weitz 1994). Another way to think of this construct is to essentially view it as efforts to expand the pie, via the creation of strategic advantages over competing dyads in the marketplace.

Because of the explicit focus on the attainment of strategic advantages, this construct is not equivalent to cooperation or joint action, concepts that have appeared in past work on buyer-supplier relationships. Both of these constructs merely describe the nature of the relationship, not the objective to develop strategic advantage.

Cooperation is basic to any successful exchange, the development of strategic advantages is not. Even in one-time, spot transactions, the buyer and seller must cooperate in terms of providing the goods and services as specified and rendering fair payment. This willingness to work together is a necessary but not sufficient condition for the attainment of strategic advantages.

Joint action refers to the degree of interpenetration of organizational boundaries (Guetzkow 1966; Heide & John 1990; Laumann, Galaskiewicz, & Marsden 1978). This occurs when the buyer and supplier become involved in activities that typically are the other member's responsibility. Mere observance of this behavior also does not necessarily mean that the dyad is focused on the attainment of strategic advantage. Hence, the strategic advantage development construct in this framework differs from other similar

constructs in the literature in that the behavior occurs with the motivation of jointly achieving strategic advantages.

Developing strategic advantages together creates interdependence between the parties involved. This interdependence can be beneficial, in that both parties may be able to achieve synergistic outcomes that would not have been achievable in the absence of the partner. Consider the case of two firms with complementary skills. These firms are considering the possibility of working together to bring a new product to market. A number of competitive firms in their industry are also working on the new product. Everyone realizes that there are substantial benefits that will accrue to the firm who is the first to introduce this new product. Suppose these two firms realize that by developing a new manufacturing process together they can dramatically reduce their lead time to market. The development of this new process will require considerable time, effort, and energy. The firms will make the necessary investments that bind their fates together if they perceive that the joint value to be gained from the relationship will outweigh the benefits that each firm would have been able to earn independently.

However, the preceding situation also poses opportunities for greater losses as the stakes involved are greater than they would be in the absence of the partner. The process of developing strategic advantages creates an interdependence that results in a loss of individual autonomy and raises new uncertainties because of the necessary

reliance on the other party. As such, the decision to become interdependent so as to attain strategic advantages is likely to be driven by the perceived rewards and costs, or expectations of rewards and costs from engaging in such behavior.

Antecedents to Developing Strategic Advantages

The decision to develop strategic advantages is often shrouded in uncertainty. Firms may experience doubts as to whether the other firm is the best firm for their needs and whether the payoffs from becoming interdependent are attainable. Hence, there are advantages and disadvantages inherent in their choice of partner and it is not always clear what the payoff will be. In interpersonal relationships, coping with uncertainty is a critical challenge in relationships and a major motivational force in shaping the individuals' mental representations of their partners (cf., Brehm 1988; Brickman 1987; Holmes & Rempel 1989; Murray & Holmes 1993).

The same is true for the value chain members who are contemplating developing strategic advantages together. These firms can gain insight into the specific nature of the costs and benefits associated with the decision to become interdependent by evaluating various antecedent characteristics of the relationship such as technological

capabilities, organizational changes in systems and skills, commitment, financial strength, consistent performance, close communication, etc. (Jap 1992).

In this study, three classes of antecedent variables are examined, based on past work in the channels, organizational behavior, economics, and social psychology literatures and interviews with channel members: partner firm characteristics, environmental characteristics, and interpersonal characteristics. These antecedents are illustrated in Figure 3-2. The groups were chosen primarily because they represent different aspects of the channel relationship--the interfirm aspect, the influences of the external environment, and the social aspect--that are likely to impinge upon the dyad's decision to develop strategic advantages together. Although clearly not exhaustive, the specific antecedents selected for this study represent a first step in understanding how strategic relationships can result in synergistic outcomes for the dyad.

Partner Firm Characteristics

As channel members consider whether to develop strategic advantages together, one of their main concerns is whether they will realize a fair return from becoming interdependent. Two aspects of this uncertainty involve the synergistic benefits and returns to the dyad (the degree to which the pie will be expanded) and the returns to the individual firms (the fairness in splitting the pie). As such, members will

look for key characteristics of the partnering firm that will help to reduce their uncertainty about their returns from the relationship.

There is a paucity of empirical and conceptual work on selecting an appropriate partner to develop strategic advantages with. However, past research on supplier selection and interviews with purchasing agents indicate that there are two important factors that need to be taken into consideration when deciding whether to work closely to develop strategic advantages with a supplier: the degree to which the partnering firm has compatible strategic goals and its ability to provide complementary competencies or resources that will enhance the likelihood of goal achievement.

Goal compatibility. Goal compatibility refers to the extent to which firms perceive the possibility of simultaneous goal accomplishment (Eliashberg & Michie 1984; John & Reve 1982; Schmidt & Kochan 1977). Firms are more likely to engage in the development of strategic advantages when they have similar goals because similar goals will insure that they will pursue similar directions and increase the probability of successful pie expansion activities. In the earlier example of two firms working to develop a manufacturing process, the firms have a common goal of reducing their lead time to market. This goal also provides

an assurance that the other firm is not likely to pursue goals which are advantageous to its competitive position but not the competitive position of its partner.

As goals between member firms become increasingly aligned, there is a strong incentive to form a close relationship so that members can exploit joint potential and effectively safeguard past investments (Heide & John 1988). Research in social psychology indicates that shared goals necessitating mutual effort increases cooperative behavior and has a unifying effect on individual members (Blake & Mouton 1979; Sherif 1966).

Complementary competencies. Partner selection might also occur on the basis of distinct capabilities, knowledge, and resources that provide for the possibility of a complementary relationship. To "complement" another individual means to supply another's lack or "to fill out or complete" another's performance (*Webster's Dictionary*). Hence, complementary competencies refer to the degree to which the firms are able to 'fill out or complete' each other's performance by supplying distinct capabilities, knowledge, and resources that enhance the likelihood of goal achievement (J. C. Anderson & Narus 1990). By working closely with partners possessing complementary abilities and resources, both firms are able to reach objectives that would have been unattainable if they had worked alone and hence, expand the pie of benefits available to the dyad.

Industry leaders are natural first candidates for potential strategic partnerships because they have demonstrated competency, and economic and performance reliability over long periods of time. However, industry leadership alone is neither a necessary or sufficient condition for strategic partner selection. The critical factor is whether the potential partner can supply missing key competencies necessary for goal achievement, not firm size or market power. In a strategic relationship, complementarity in resources, assets, abilities and interpersonal roles are likely to facilitate interdependencies that can provide the basis for synergistic outcomes.

Environment Characteristics

Along with concern about the magnitude of the positive increase from working together, the members also need to understand the potential for exploiting the unique combination of capabilities, assets, and knowledge present between them. The environment plays an important role in impacting the potential rewards from activities directed toward gaining strategic advantage. In this study, three aspects of the environment considered are demand munificence, dynamism, and complexity.

Demand munificence. Munificence is the extent to which the environment can support sustained growth in terms of absorbing and providing the dyad with necessary resource opportunities (Starbuck 1976). In the channels literature,

munificence has typically been examined with respect to demand (Achrol, Reve, & Stern 1983; Etgar 1976; Guiltinan 1974). When the demand for the dyad's products is high, there is an incentive to work closely together to develop better ways of meeting the demand over competing dyads. Hence, demand munificence raises the potential benefits to be gained from working closely to develop strategic advantages.

Dynamism. Dynamism describes changes in product and competitor strategies that occurs frequently and is difficult to predict (Achrol & Stern 1988). When the environment is constantly changing, decision-making and coordination across the dyad becomes increasingly difficult for members to manage individually. Dynamism raises environmental uncertainty for the dyad. As such, a dynamic environment provides an incentive to develop closer relations in order to cope with the environment and meet the dyad's decision-making and coordination needs.

Complexity. Complexity involves both the heterogeneity of external forces affecting resources and their levels of concentration in the environment. When heterogeneity in the environment surrounding the dyad is high, member firms tend to increase cooperative behavior and develop closer linkages with their partners (Achrol et al. 1983). Like dynamism, complexity increases environmental uncertainty for the dyad and provides an incentive to work closely together in order to better cope with and manage the environment.

Partner firm and environmental characteristics are two types of factors that in and of themselves, provide incentives to the dyad to work closely to develop strategic advantages together. These factors are useful to the members in determining the potential rewards of working closely together; they impact the potential size of the pie that can be realized from engaging in strategic advantage development activities. Essentially, these factors operate as main effects on the likelihood that buyers and suppliers will develop strategic advantages together. In the next section, an important moderator of these effects is hypothesized and the nature of the interaction is explained in greater detail.

Interpersonal Characteristics

Along with the concern over whether the pie of benefits will expand and how the environment will affect its size, there is also some concern over how the expanded pie will be divided between the partners. Since the members are typically unable to specify in advance what the expanded pie size will be and since some benefits may only be realized in retrospect, assurances of fair pie division can be extremely important in determining whether the development of strategic advantages is worthwhile. In such an ambiguous situation, members are not able to rely on legal contracts to specify and account for all possible contingencies. As a result, the social or interpersonal relationship between the boundary-

spanning members of the two firms can become important in determining whether the firms will develop strategic advantages.

Recently, there has been a growing interest in the role of personal relationships between boundary-spanning members in the conventional channel. Personal relationships have been found to shape economic outcomes in a number of studies on interorganizational exchange in a number of contexts such as: the publishing industry (Coser, Kadushin, & Powell 1982), international joint ventures (Doz 1988; Hakansson & Johanson 1988; Walker 1988), and small to mid-sized textile firms in Italy (Lorenzoni & Ornati 1988). Similarly, one can imagine that if the interpersonal relationship between boundary-spanning members is characterized by conflict and distrust, this could act as an impediment to potential interorganizational outcomes.

In an inductive field study of dyadic relationships in high-growth entrepreneurial firms, Larson (1992) found that personal relationships shaped the context for new exchanges between firms by reducing risks and uncertainty about the motives and intentions of the other member. She also found that individual and firm reputations were an important consideration in deciding whether to develop the interorganizational exchange relationship. Companies and individuals saw themselves as members of an inner circle or network within a broader industry circle. As a result, credibility and a positive reputation--for business and

performance--were important attributes for coordinating exchange between firms. Hence, social factors such as personal relationships and reputations (personal trust), coupled with a knowledge of the firm's skills and capabilities (economic trust) were prime considerations in interorganizational exchange.

Mutual trust. In light of this, trust is hypothesized to play a key moderating role in determining whether firms will develop strategic advantages. Trust is defined as the ability to reliably predict the actions of the other party in the relationship and the belief that the other partner will not act opportunistically if given the chance to do so (Andaleeb 1992; J. C. Anderson & Narus 1990; Deutsch 1958; Ganesan 1993; Lindskold 1978; Zucker 1986).

Trust is key to the engagement in activities directed toward the development of strategic advantage. Individuals who trust each other are more willing to share relevant ideas and comprehensive information (Bialejewski & Giallourakis 1985; Moorman et al. 1992; Zand 1972), clarify goals and problems (Zand 1972) and tend to approach the relationship with a problem-solving orientation (Golembiewski & McConkie 1975; Zand 1972). As trust is developed between the parties, the individuals' perceptions and expectations of relationship continuity will increase (E. Anderson & Weitz 1989), and members are able to communicate more efficiently than dyads in which trust is low (Aldrich & Pfeffer 1976; E. Anderson & Weitz 1989; Knapp 1978; Ouchi 1980). In the interpersonal

relationship literature, studies have shown that as a relationship develops, feelings of mutual responsibility for the other party's outcome increases, and parties explore mutually beneficial activities (Altman & Taylor 1973; Levinger 1980; Levinger & Snoek 1972; Taylor 1979).

Trust as a moderator of strategic advantage development.

Trust has been examined recently in channel relationship research, and as a critical aspect of interorganizational exchange (cf., Morgan & Hunt 1994). Academics and practitioners collectively agree that trust plays a key role in close, partnering relationships. This increasing interest tends to foster an implicit belief that trust is a necessary component of strategic relationships. In this study, trust is not viewed as a necessary or sufficient condition for the development of strategic advantage. Instead, it is seen as an important facilitator of strategic advantage in that it moderates the effects of partner firm and environmental characteristics.

This is to say that interpersonal relationships between boundary-spanning individuals can enhance or impede the emphasis placed on developing strategic advantage. For example, suppose a firm wants to devise new ways to take cost out of its distribution system to another firm. The firms perceive significant potential benefits accruing to both firms. Once it identifies potential partners who have similar goals and complementary competencies, the firm will have a preference to work with companies that it has

developed a positive history of experience with, or in other words, those companies with which the firm has trusting relationships with because it has greater chances of gaining a fair return for the strategic advantage development activities. If interpersonal relationships are marked by a great deal of suspicion, distrust, and latent conflict, the firms will be less likely to benefit from working together, even when the potential interorganizational benefits are great. The nature of the interactions expected can be seen in Figure 3-3.

H1: Trust moderates the effects of goal compatibility on the development of strategic advantages.

H2: Trust moderates the effects of complementary competencies on the development of strategic advantages.

H3: Trust moderates the effects of demand munificence on the development of strategic advantages.

H4: Trust moderates the effects of environmental dynamism on the development of strategic advantages.

H5: Trust moderates the effects of environmental complexity on the development of strategic advantages.

Consequences of Developing Strategic Advantages

The consequences of engaging in activities to develop a strategic relationship are the realization of strategic advantages, higher joint profits, and the development of idiosyncratic assets (see Figure 3-4). Strategic advantages (i.e., superior access to resources, key technological

knowledge and development, etc.) are advantages that are impossible to acquire alone and puts the dyad in a better position to carry out its strategies.

The process of developing strategic advantages should lead to the creation of idiosyncratic assets to support the relationship. These assets may be tangible, such as manufacturing facilities dedicated to support the relationship or intangible, such as a newly developed capability, skill, or technology that enables the achievement of strategic advantages. These assets are what sustains and supports the created synergy between the firms and provides the dyad with a joint value that could otherwise not be created by either firm independently.

H6: The process of developing strategic advantages leads to the achievement of strategic advantages over competing dyads.

H7: The process of developing strategic advantages leads to higher joint profits.

H8: The process of developing strategic advantages leads to idiosyncratic assets.

The Longitudinal Conceptual Model

One of the central goals of this study is to understand the development of strategic advantages over time. It could be that the relationship between variables posited thus far are likely to change over the course of the relationship, because as time passes, learning occurs, perceptions of the environment changes, and member attitudes, goals, and opinions are typically updated as a function of these

changes. Hence, what was appropriate at the beginning of the relationship may become less appropriate as members' knowledge of the other increases, and similarly, what may have been important earlier in the relationship may become less important over time and vice-versa. If the roles of the variables change over time, then it means that the firms must change their approach to managing these variables over time in order to insure the maximum joint benefit possible from the relationship.

The main interest in the longitudinal theoretical model is still centered around the development of strategic advantages. The basic process model of Figure 3-5 is replicated over time, creating the full longitudinal model of Figure 3-6.

Intermediary Effects Between Time One and Two

As the dyad works closely together to develop strategic advantages, they learn more about each member's needs, goals, future intentions, and capabilities. All of this information is used to update their perceptions, attitudes, and expectations of the other member.

Interpersonal theorists in the ethological/attachment theory tradition maintain that as the relationship between individuals is developed, the goal of the attachment system is to sustain a sense of security. Hence, individuals are motivated to develop "working models," or cognitive

representations of the partner that maintains a sense of confidence in their psychological availability (Bowlby 1977).

Effects on goal compatibility. Between time one and two, the fruits of success--strategic advantages and joint profits--are likely to influence perceptions of goal compatibility and the environment. When strategic advantages are gained, confidence between the members is built and familiarity increases. Gulati (1995) shows that when this happens, firms tend to move away from cautious contracting to looser practices in their relationship. As familiarity increases, members might realize new and potential areas for working together in the future, hence, increased goal compatibility.

H9: Strategic advantages gained and the achievement of joint profits at time one increases perceptions of goal compatibility at time two.

Effect on complementary competencies. Complementary competencies at time two are hypothesized to be affected primarily by the presence of idiosyncratic assets at time one; however, the direction of the effect is unclear. Idiosyncratic assets may affect complementary competencies by increasing or decreasing them. Increases can occur if the assets help the firms to improve the unique competencies that already exist in the relationship. However, this is rather unlikely in the current context. Returning to the GM-Intel example of the previous chapter, this would mean that GM

becomes better at manufacturing cars and Intel becomes better at making chips as a result of working together to provide the marketplace with a superior value car.

Instead, it's more likely that the process of working closely together requires the two firms to share details of their competencies that would not have ordinarily been shared. As firms learn more about each other's competencies, the uniqueness of the abilities each firm brings to the relationship decreases and a new asset is created. Hence, the presence of relationship-specific assets in time one decreases the level of unique, complementary competencies brought to bear on the interorganizational relationship in time two.

H10: The presence of idiosyncratic assets at time one decreases complementary competencies at time two.

Effects on environmental perceptions. The consequences of working closely together at time one are likely to affect the members' perceptions of the environment. Recall that firms work closely together in response to their environment; by working together, they help each other to better cope with a dynamic and complex environment. As a result, when the dyad achieves success together in the form of strategic advantages and joint profits, both parties' perceptions of the environments should also change.

When the dyad works closely together at time one, familiarity and a better understanding of each other's needs, directions, and capabilities occurs. In light of this new

knowledge, the dyad may realize additional potential opportunities to work together and mutually benefit. This would increase their perceptions of the demand munificence of the environment. When GM and Intel provide a superior-value car to the marketplace, positive consumer response to the car may increase the firms' perceptions of potential opportunities for future success together.

H11: Strategic advantages gained and the achievement of joint profits at time one increases perceptions of environmental munificence at time two.

Strategic advantages, joint profits, and the presence of idiosyncratic assets are also likely to make the environment appear less dynamic and uncertain. Interpersonal theorists associated with an interdependence theory tradition note that the benefits of uncertainty reduction in the relationship are increased prediction and control of one's future outcomes. As relationship-specific investments build in the relationship and commitments crystallize, uncertainty becomes increasingly dissonant with the members behavior orientation. Hence, they are motivated to achieve confident, trusting attitudes through psychological means (Holmes & Rempel 1989; Johnson & Rusbult 1989).

As the buyer-supplier dyad achieves success and idiosyncratic assets are created, there is motivation to change their perceptions of the other firm's goals and values in a manner consistent with the consequences of working closely together. Similarly, their perceptions of the environment should change in a manner that is also

consistent. The certainty of attaining strategic advantages, the increased joint profits earned, and the other members' commitment to the relationship via idiosyncratic assets are likely to make the dyad feel more confident and in control of their position in the marketplace. Hence, the dyad may perceive its environment to be less dynamic and complex.

H12: Strategic advantages gained, the achievement of joint profits, and the presence of idiosyncratic assets at time one decreases perceptions of environmental dynamism at time two.

H13: Strategic advantages gained, the achievement of joint profits, and the presence of idiosyncratic assets at time one decreases perceptions of environmental complexity at time two.

Strategic Advantage Development at Time Two

Two of the three classes of antecedents to developing strategic advantages at time one--partner firm characteristics and environmental characteristics--are likely to still be key factors in the decision over time. However, the moderating effects of trust are likely to be reduced over time. This is because trust is a powerful assurance when decision-making is made under high uncertainty and risk. When the situation is highly uncertain, individuals are motivated to learn from and incorporate any new or relevant information that may help reduce uncertainty. However, when uncertainty decreases, people become more comfortable in the situation and will avoid situations that might confront them with new or potentially inconsistent information (Sorrentino, Holmes, Hanna, & Sharp 1995).

When firms have limited experience in developing strategic advantages together, trust acts as a very powerful pledge--an implicit contract of good intentions--such that members are willing to infer an optimistic outlook regarding the consequences of depending on each other and are likely to have a greater sense of security in working together. Over time, trust may become a less powerful predictor of developing strategic advantages, since members have concrete interactional information on each other. Their shared experiences, the idiosyncratic assets that are created, and the increase in perceived environmental based benefits bind the relationship and make less tangible commitments or assurances such as trust less important.

All of this is not to say that the role of the firm or environmental characteristics also become less important. In fact, their effects on the likelihood of developing strategic advantages should not change. In and of themselves, they provide incentives for the development of strategic advantages. Hence, goal compatibility and complementary competencies are still expected to be positively related to the likelihood that the firms will work closely together, however, their effects at time two are hypothesized to no longer be moderated by trust.

H14: Firm (goal compatibility, complementary competencies) and environment (demand munificence, dynamism, and complexity) antecedents to developing strategic advantages at time two are not moderated by trust.

The consequences of developing strategic advantages at time two are hypothesized to lead to synergistic outcomes and idiosyncratic assets in a similar manner as in time one. Hence, working closely together to develop strategic advantages should result in advantages over competing dyads, increased joint profits, and the creation of idiosyncratic assets.

H15: The development of strategic advantages at time two leads to strategic advantages, joint profits, and idiosyncratic assets.

Summary

In this chapter, the conceptual model for the dissertation was presented. Characteristics of the partner firm (i.e., goal compatibility and complementary competencies), and the environment (i.e., demand munificence, dynamism, and complexity) are thought to be positively associated with the degree to which firms will develop strategic advantages together. However, the effects of these interorganizational and environmental factors are likely to be moderated initially by the level of trust between boundary-spanning individuals. The development of strategic advantages should lead to synergistic outcomes (i.e., higher joint profits, strategic advantages over competing dyads) for the dyad and the creation of idiosyncratic assets.

Over time, the consequences of working together differentially affect the antecedents to working together in the future--goal compatibility, complementary competencies,

demand munificence, dynamism, and complexity. These antecedents lead to the development of strategic advantages as in time one, however, the moderating role of trust is no longer present. Finally, the process of working closely together to develop strategic advantages at time two should lead to synergistic results--strategic advantages, joint profits, and idiosyncratic assets."

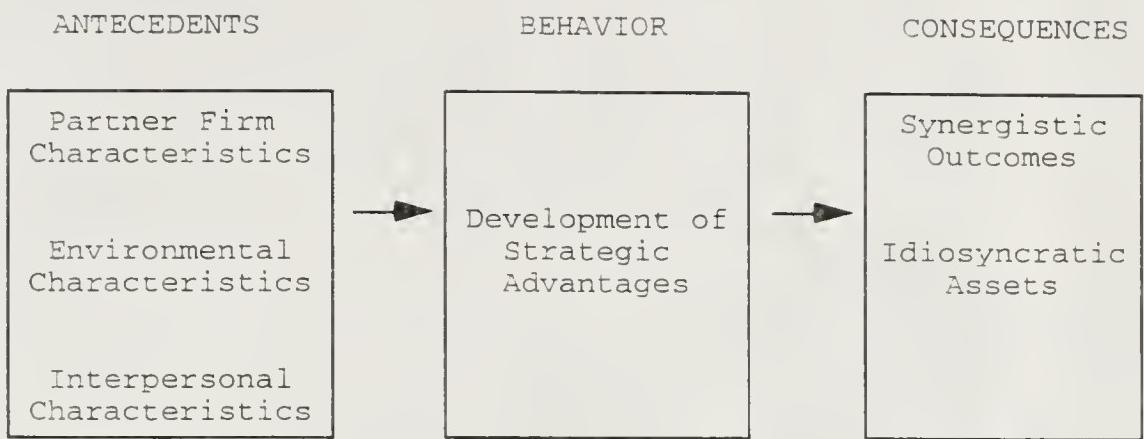


Figure 3-1: Overview of the Strategic Advantage Process Model

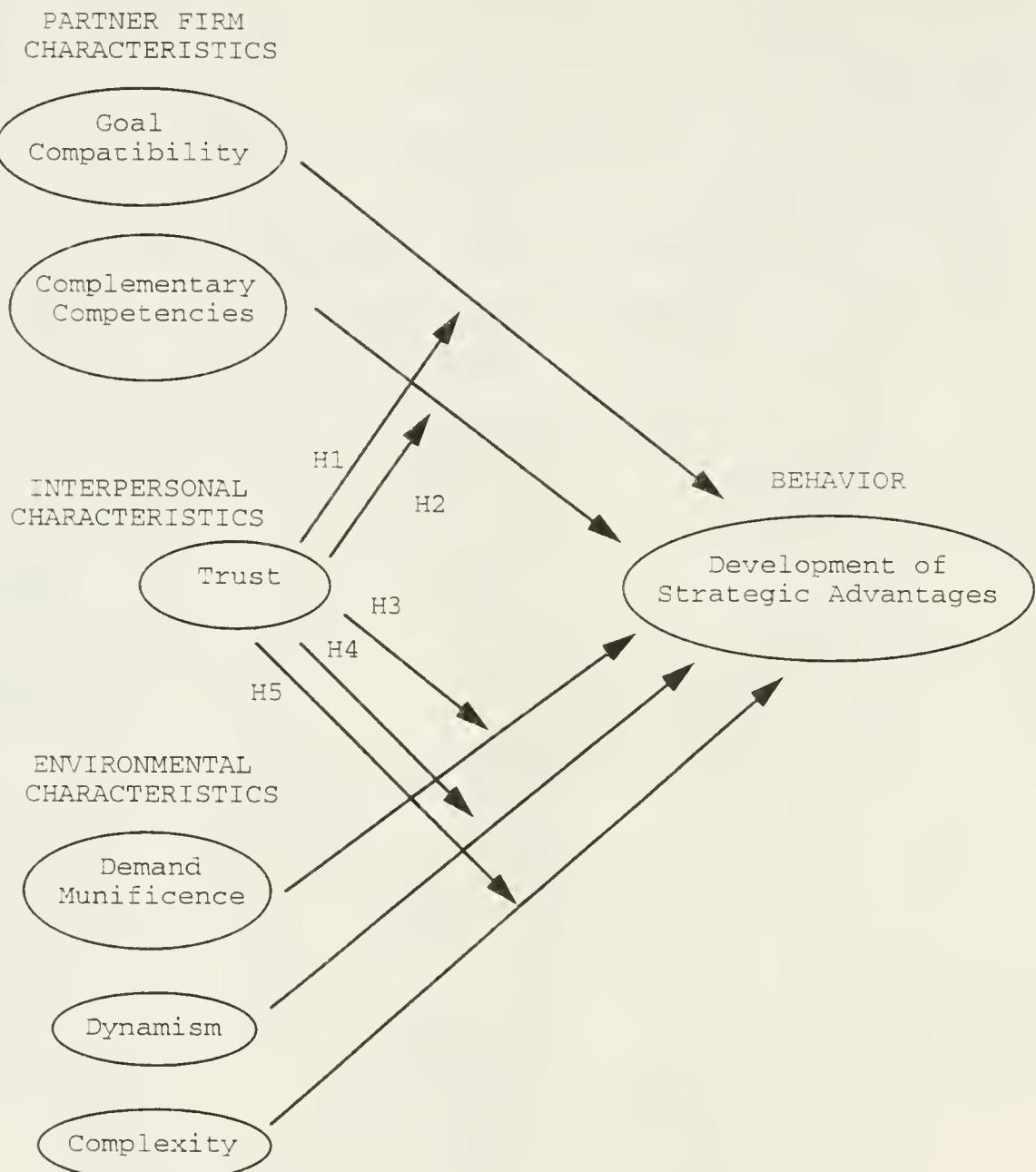
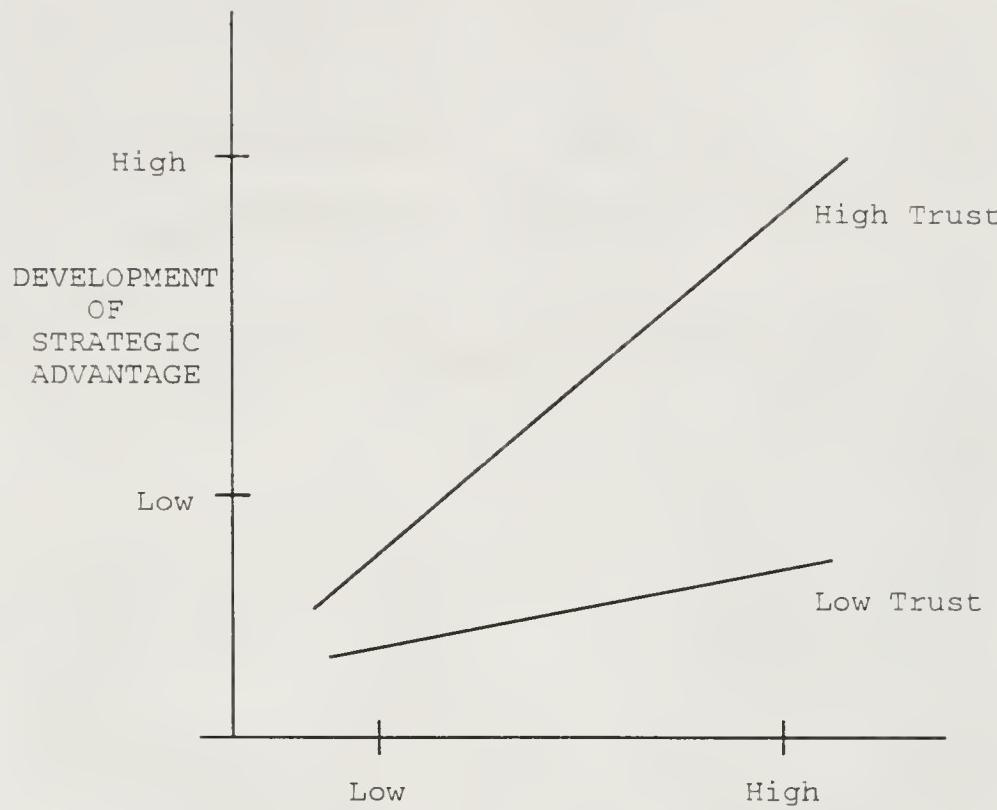


Figure 3-2: Antecedents to the Development of Strategic Advantage.



ANTECEDENT (e.g., goal compatibility, complementary competencies, demand munificence, dynamism, complexity)

Figure 3-3: The Moderating Role of Trust

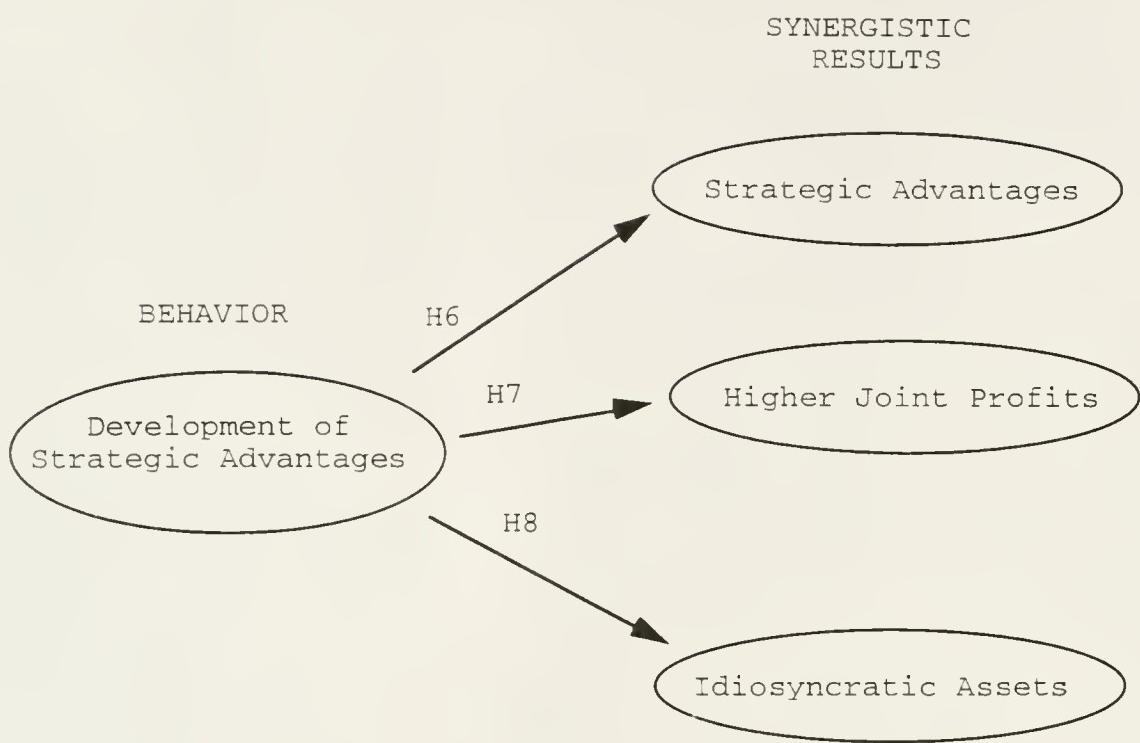


Figure 3-4: Consequences of Developing Strategic Advantages

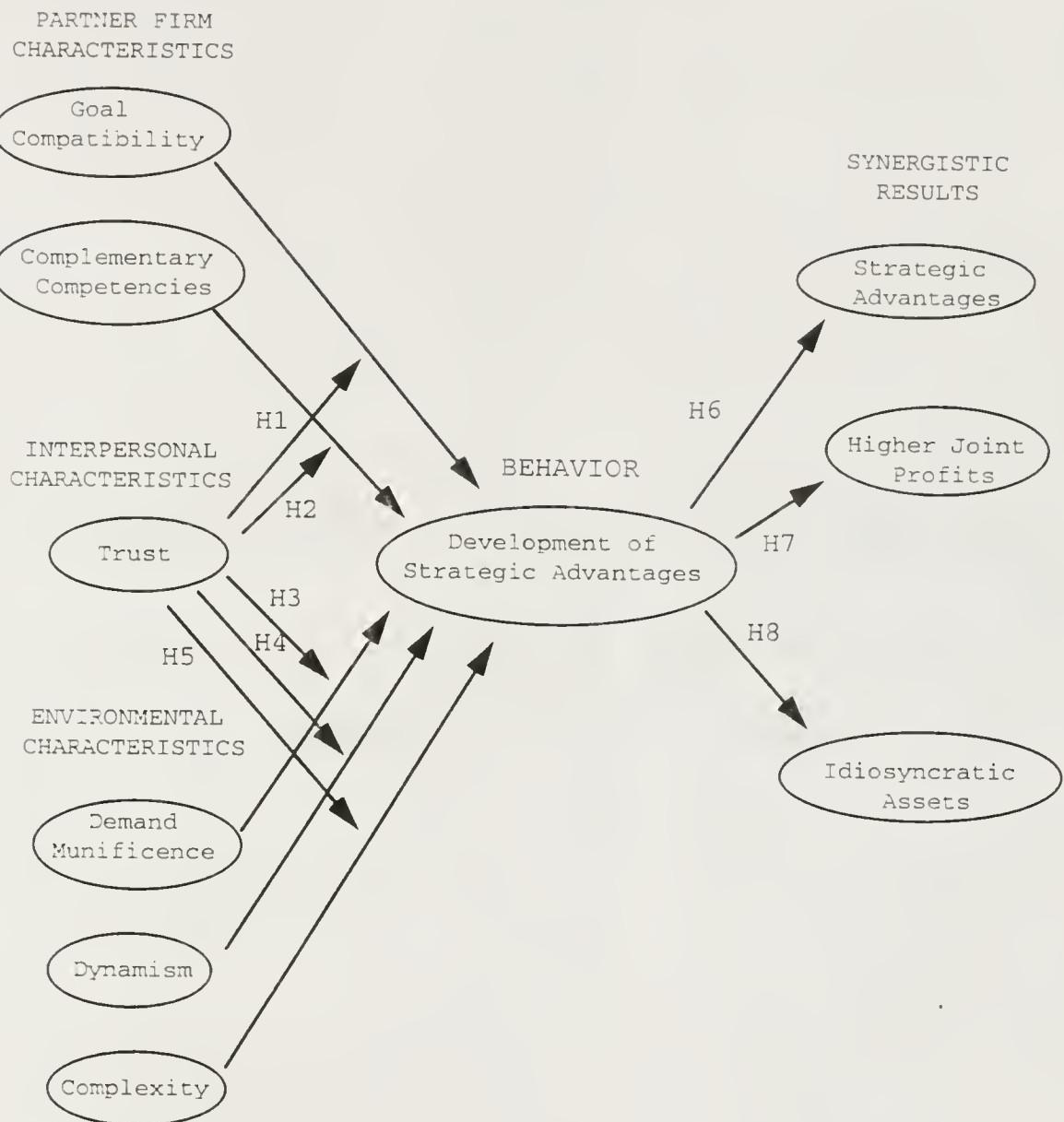


Figure 3-5: Overview of Time 1 Model

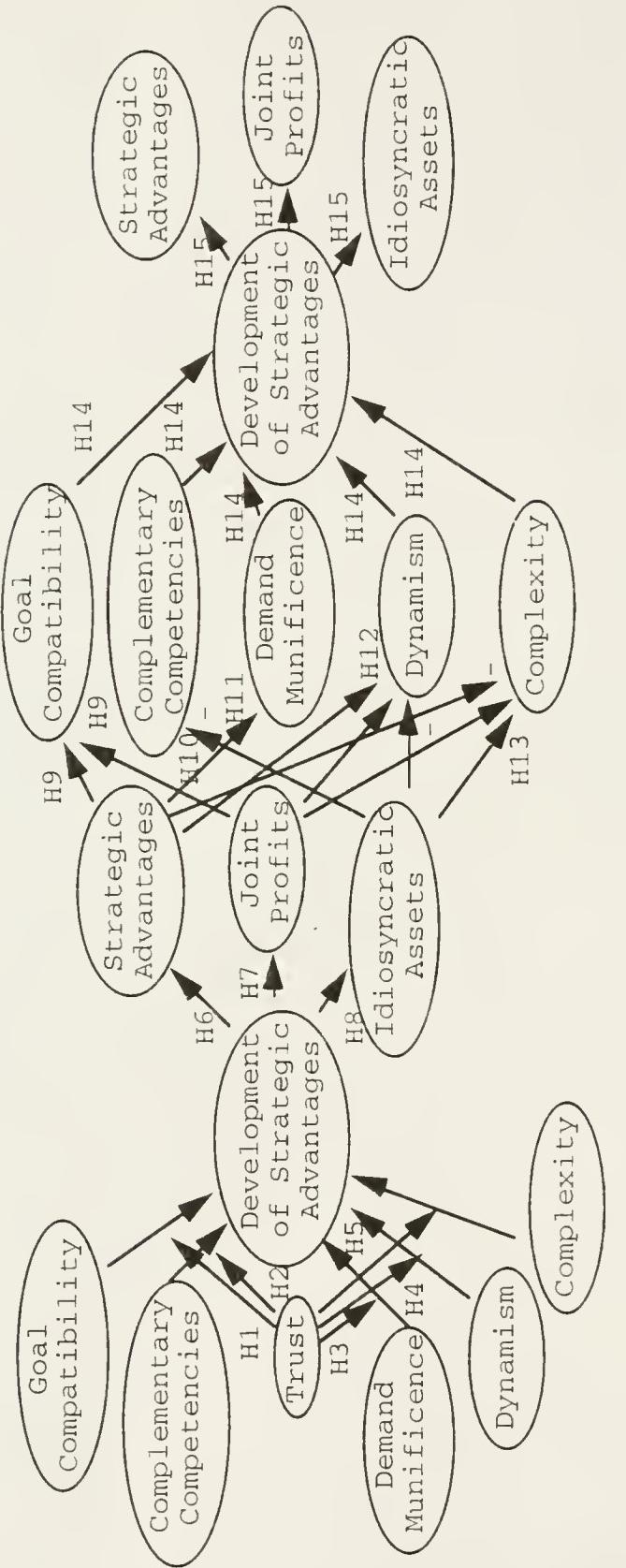


Figure 3-6: The Longitudinal Conceptual Model

CHAPTER 4 METHODOLOGY

Overview

This chapter explicates the survey methodology, procedures, and initial measurement issues. The first section discusses the chosen design and methodology. In the second section, the research setting and sample are described. The sampling frame and respective industry characteristics are outlined. The data collection procedure is delineated in the third section. The last section of this chapter presents details concerning questionnaire and scale development, such as pretest results, scale reliabilities and evidence of the constructs' initial convergent and discriminant validity.

The Longitudinal Design

The best way to examine potential dynamics in the development of strategic advantages between firms is via a longitudinal design. Longitudinal designs have been used extensively in the organizational behavior literature. One of the first longitudinal studies examined the reciprocal causal relationships between employee performance and

expectancy model constructs using a panel design (Lawler 1968). Since then, over 27 longitudinal studies have been published that examine a number of organizational phenomena including the relationship between work and nonwork satisfaction, employee satisfaction and performance, stress and coping strategies, and leader-subordinate relationships (see Williams & Podsakoff 1989 for a review).

Despite the difficulty of obtaining data, longitudinal designs are recommended over cross sectional designs for a number of reasons. First, longitudinal studies are more powerful than cross sectional studies in accounting for longitudinal variation (Kessler & Greenberg 1981). Although this doesn't mean that causation is proved in an absolute sense, longitudinal designs allow for explicit testing of the effect between a construct measured at two points in time, which is a more suggestive result concerning the true strength and direction of causation between variables than is possible with a cross sectional design (Kerr & Schriesheim 1974).

Not only do longitudinal designs allow one to examine the directionality of the relationship between variables, but they also allow assessment of the degree of mutual dependence between variables (Bohrnstedt 1975; Heise 1970; Liker, Augustyniak, & Duncan 1985). Hence, such designs are ideally suited for examining reciprocal relationships between attitudes, behaviors, and other organizational phenomena.

Finally, longitudinal research conducted in the informants' natural setting with the individuals most closely related to the phenomena of interest are also generally less susceptible to the criticisms associated with a lack of external validity and provides an opportunity for determining the effect of one variable on another in a setting of greatest importance to managers (Sashkin & Garland 1979).

Time Lag Choice

However, the use of a longitudinal design raises the issue of determining what the appropriate time lag should be. In the 27 studies reviewed in Williams and Podsakoff (1989), there was very little consistency. Ten studies used time lags ranging from one week to 25 years. Typically, the lag is chosen out of convenience, and not theory. At this point, more systematic work is needed in the area that identifies more effectively the appropriate time lag.

In this study, a one year lag is used, partly out of convenience, but also because pretest interviews with buyers in the marketplace suggested that within a one year time period, there appears to be a lot of variation in possible outcomes. Some informants told of relationships disintegrating within a one-year period of time, while others reported little change.

There is also some anecdotal evidence that suggests that a one-year time lag may not be an unreasonable choice. Recent research involving interviews with CEOs of strategic

alliances indicates that firms need to work together at least four years before feeling comfortable or secure enough about their partner to consider working closely to develop strategic advantages together (Spekman, Isabella, MacAvoy, & Forbes 1994). If this is even generally true, then a one year time lag should be long enough for changes to occur in the relationships between variables, while still not too long of a time frame such that changes are no longer detectable.

Unmeasured Variables

As with all designs, longitudinal designs are susceptible to criticisms concerning potential omitted variables (Cliff 1983; Duncan 1969). Omitted variable effects are summarized in the error terms of a system of equations. However, in a longitudinal design, the adverse effects of omitted variables are particularly problematic, since the error terms of similar variables can occur and potentially influence relationships between variables at numerous and repeated points in the system of equations.

The only way to reduce the possible adverse effects of omitted variables is to move beyond some of the simple two-wave, two-variable models examined to date and try to carefully select those predictors of a variable that are most likely to exert significant effects on it (Williams & Podsakoff 1989). In this study, antecedents to developing strategic advantages are selected from two independent sources--those specific to firm characteristics and those

specific to the external environment surrounding the dyad. Hence, maximally different types of variables are chosen in attempting to explain the phenomena of interest. Additionally, this study moves beyond a simple, two variable relationships to a mediated, multi-variable process. The full, longitudinal theoretical model is depicted in Figure 3-6.

Key Informant Methodology

With the exception of trust and environmental factors, the conceptual model is primarily concerned with interorganizational constructs--characteristics of the member firms involved. These constructs are unobservable, theoretical, shared constructions describing the member firms or what they do. As such, key informants are asked to provide the researcher with reports on observed measures in order to infer the nature of these interorganizational constructs. The key informant technique was originally associated with participant observation studies in ethnographic research (Lofland 1971), although nowadays it is often used in survey contexts to obtain quantifiable information.

Key informants differ from survey respondents in that informants are asked to generalize about patterns of behavior after summarizing either observed (actual) or expected (prescribed) interorganizational relations. In contrast, survey respondents provide descriptions of personal feelings,

opinions, and behaviors. Hence, key informants are asked to explain and predict the behavior of organizations rather than individuals (Seidler 1974). Since their task is more complex, key informants are chosen on a non-random basis; they are typically chosen because they have special qualifications such as a particular status, specialized knowledge, or even accessibility to the researcher.

Three issues about the use of this methodology should be noted. First, since individuals are asked to make generalizations about organizations that have characteristics distinct from the individuals themselves, systematic biases may affect the informant's responses. Over or under reporting can occur due to the informant's position, job satisfaction, or other characteristics. Fortunately, measures have been developed to evaluate informant characteristics and help assess the degree to which this problem exists (Kumar, Stern, & J. C. Anderson 1993). A more detailed discussion of this will be presented in the section on informant characteristics.

Finally, despite the potential for systematic or perceptual biases, researchers still recommend the use of multiple key informants because data from only a single informant precludes a rigorous assessment of the measures' validity and reliability, as well as the convergent and discriminant validity of informant reports (Campbell 1959; Phillips 1980). A number of researchers have developed quantitative techniques based on multi-trait, multi-method

approaches that allow decomposition of the error term into variance due to the trait, the informant, and random error (E. Anderson 1985; Bagozzi & Phillips 1982; Bagozzi & Yi 1994; John & Reve 1982; Jöreskog 1971; Kenny & Kashy 1992; Kumar & Dillon 1990; Marsh 1989; Phillips 1981). These techniques will be used in the present analysis.

Second, the use of multiple informants leads to another issue--perceptual agreement--the degree of similarity in reports from multiple informants. Social psychologists have long asked whether people's perceptions of others are reflections of reality or merely "the eye of the beholder." If perceptions are the former--in other words, if they are data driven--then researchers should observe similar reports from multiple informants (Higgins & Bargh 1987). If perceptions are theory driven, then individual reports need not converge. Historically, research in the channels literature utilizing multiple informants has failed to show strong evidence of perceptual agreement (J. C. Anderson & Narus 1990; John & Reve 1982; Kumar et al. 1993; Phillips 1981), with the exception of Bagozzi and Phillips (1982) and J. C. Anderson (1987). The causes behind the divergence in reports and the appropriate methods to handle discrepant reports are still unresolved issues.

Research Setting and SampleThe Firms

The vertical dyads examined in this study are manufacturing companies and their suppliers. Industrial buying relationships are ideal for examining strategic relationship dynamics compared to buying relationships between manufacturers and distributors such as wholesaling companies and retailers. Relationships between manufacturers and distributors differ from industrial buying relationships in that distributors must procure a variety of products from competing suppliers. As a result, it is difficult for them to develop a close, strategic relationship with any one supplier.¹ Strategic relationships inherently possess an element of exclusivity, in that the firms are trying to create a unique, strategic advantage that directly competes with other buyer-supplier dyads in the marketplace. If retailers and their suppliers did this, it would likely alienate other important sources of supply or key customers. Hence, the distributor's need to carry wide assortments makes a manufacturer-retailing setting unsuitable for this study.

¹ Some might argue that the development of efficient consumer response (ECR) systems between retailers and manufacturers are examples of strategic relationships. However, these computer-linked inventory management systems are becoming so common in the retailing industry that they no longer provide channel dyads with a unique, sustainable advantage over competing dyads. These systems will soon become an industry standard--a cost of doing business in a particular industry.

Access to the participating firms was provided by the Marketing Science Institute (MSI) and the Institute for the Study of Business Markets (ISBM) at Pennsylvania State University. Each firm was offered an executive summary, presentation of results, and customized analyses in return for their participation. The procurement divisions of four Fortune 50 manufacturing companies agreed to participate--a computer manufacturer, a photography equipment manufacturer, a chemical manufacturer, and a brewery.² Their participating divisions are listed in Table 4-1. Each of these companies were asked to identify corresponding suppliers as potential participants in the study.

The Transactional Relationships

The surveyed dyads represented significant purchasing arrangements, as shown in Table 4-2. The firms had worked with each other 13.7 years on average and annually purchased over \$560 million in materials and services. This represented approximately 27% of the supplier's total annual sales in the category. Nearly 60% of the purchases typically made were a mixture of first-time, routine, and modified routine purchases. Over 50% of the relationships surveyed described themselves as being in the mature phase of their relationship life cycle. This means they felt that they had

² All four companies have requested that their identities be kept anonymous.

an ongoing, long term relationship in which both members were receiving acceptable levels of satisfaction and benefits from the relationship.

Unit of Analysis

Since the goal of this study is to understand strategic relationship dynamics and a relationship requires at least two parties, the unit of analysis is the channel dyad. As a result, the measures used in this study were designed to tap aspects of the mutual relationship between the firm, not the individual perceptions of the two firms, since the focus of the conceptual model is on joint, mutually shared activities and outcomes, not potential asymmetries between the two firms.

This means that the surveys were designed with the intent of using individual buyer and supplier representatives as independent informants of the constructs in the model, i.e., they completed identical items tapping the nature of the mutual relationship between the firms. The use of multiple informants in this manner allows for assessment of the construct validity of the organizational properties measured and partitioning of error variance into trait, informant, and random error variances.

Informant Characteristics

Informants were manufacturing buyers and supplier representatives. In order to maximize the sample size and minimize potential adverse effects of informant attrition at

time two, buyers were asked to report on two supply relationships. These relationships did not necessarily need to be strategic, nor did they have to involve their largest suppliers. However, the buyers were asked to select relationships that were maximally different (e.g., a positive and a negative relationship) if possible, so that range restriction on the measures would not inhibit model estimation.

Within the supplier firms, buyers were asked to identify the supplier representative that they interacted with most frequently on a regular basis, with the one stipulation that the representative be a person with whom they have had frequent interaction with for at least one year. Preliminary interviews with buyers during the survey pretest indicated that they typically required at least one year of interaction with a supplier representative to feel comfortable about making reports on the level of interpersonal trust present in the relationship. This one year interaction requirement also helped insure that the sampling frame consisted of long term relationships instead of new, developing relationships. The average relationship length between buyers and supplier representatives in this study was 3.7 (s.d. 3.5) years, which, according to anecdotal evidence (Spekman et al. 1994), seems to be a reasonable length of time for members to learn enough about each other's goals, intentions, and trustworthiness to feel comfortable about the possibility of working more closely together.

Historically, researchers have relied on global and specific measures to assess informant competency. Examples of global measures of informant competency include length of an informant's tenure with a firm (Phillips 1981), the informant's knowledge of or involvement with other firms engaged in relationship with the focal firm (Heide & Miner 1992), or the length of time the informant has observed or interacted with other firms (Phillips 1982).

In this study, the buyers had 11.2 (s.d. 8.2) years of experience in purchasing on average, and had been with their present companies 20.9 (s.d. 7.4) years on average, both are positive indicators of informant competency. The supplier representatives averaged 15.1 (s.d. 9.7) years of experience and had been with their companies 14.2 (s.d. 9.4) years on average. It could be that turnover is more pervasive among supplier representatives than buyers. However, these indicators do attest to the representatives' competency as informants.

Researchers have also used specific measures of competency to assess the level of an informant's knowledge of each major issue included in a study (e.g., Cusumano & Takeishi 1991). In this study, at the end of the questionnaire, the informants were asked questions such as, "How knowledgeable are you about the level of trust in your firm's relationship with this firm?" Their responses were

marked on 7-point Likert scales (1=Not Very Knowledgeable, 7=Very Knowledgeable). The average responses to these scales for buyers and suppliers was 5.6.

Procedure

Time One

Two hundred buyers from the four firms were surveyed in February 1994, creating an initial sampling frame of 400 dyadic relationships. These questionnaires were mailed to the buyers along with a pre-addressed, postage-paid envelope, a cover letter from the researcher and a memorandum from corporate executives that explained the purpose of the study, stressed the need for participation, and assured confidentiality of all responses. A copy of the cover letters and survey is reproduced in appendix A. Each survey required approximately fifteen minutes to complete.

In the survey, buyers were asked to supply the names and addresses of supplier companies and representatives who met the forementioned criteria--maximally different relationships that have been ongoing for at least one year. The buyers then returned the questionnaires directly to the researcher and similar questionnaires were sent to the named supplier along with a self-addressed, postage-paid envelope, and cover letters from the researcher and corporate executives. A copy of the cover letters and survey is presented in Appendix B. The supplier survey required ten minutes to complete. The

difference in time required is accounted for by the fact that the buyer had to supply the supplier's name, the representative's name and address.

Thirty-one of the buyers were eliminated from the sample for various reasons: some had been recently reassigned or didn't work with suppliers on a long term basis, or simply refused to complete the surveys. Two hundred seventy-five buyer surveys were returned (a 75% response rate) and 220 corresponding supplier surveys were completed (an 80% response rate). Non-respondent differences were assessed by testing for differences between early and late respondents (Armstrong & Overton 1977). Early responses were defined as the first 75% of the questionnaires returned, while the remaining 25% were defined as late responses. Univariate tests between the observed responses used in the analysis were conducted. The results were essentially not significantly different.

Time Two

In February 1995, the buyers and suppliers who returned surveys in the initial data collection were again sent cover letters, memorandums, and surveys in a similar fashion to time one. This survey was essentially identical to the time one survey. A copy of the buyer and supplier surveys and cover letters are displayed in appendix C and D, respectively.

Of the 275 buyers and 220 suppliers surveyed, 42 buyers and 12 suppliers changed representatives and were no longer

working with the same buyer or supplier representative from time one, two supplier surveys were returned to the sender and no forwarding addresses could be found, two buyers and four suppliers refused completion of the survey, and ten purchasing relationships were terminated over the one year period. Collectively, this represents a 20% attrition rate for buyers (54 informants), and a 13% rate for suppliers (28 informants). 167 buyer surveys and 154 supplier surveys were used in the analysis. In total, 80% of the buyers and 83% of the suppliers at time one responded to the second survey.

As before, non-respondent differences were assessed by conducting univariate tests between the observed responses of the first 75% of the surveys returned and the last 25%. There were essentially no significant differences.

Questionnaire and Scale Development

Pretest

In January 1994, depth interviews and pretests of the survey were conducted with buyers in the computer manufacturing and chemical manufacturing firms. In the first pretest, six buyers in the personal computer division were given the proposed survey and cover letters. Their comments and suggestions for improvement were used to revise the survey. Three weeks later, six buyers from several purchasing divisions in the chemical manufacturing firm were asked to complete the revised survey.

In both pretest sessions, the amount of time required for completion was recorded along with problematic issues or ambiguities, and buyers were probed to insure that the survey would be understandable to informants. Additional in-depth interviews were conducted with buyers at both firms to provide the researcher with a better understanding of the buyers' environments, internal and external demands, and the nature of their task and supplier relationships. Interviews were also conducted with manufacturing buyers at the other participating companies as well as non-participating companies that the researcher had access to through MSI and ISBM.

Measurement

Measure development was based on the procedure recommended by Nunnally (1978). All constructs were measured with multiple-item, 7-point Likert scales in simple terms using the language commonly employed by the informants. Scales for constructs with no precedent in the literature (e.g., the development of strategic advantages and complementary competencies) were created for the purpose of this study. Scale items and measures for constructs that have appeared before in the channels literature were adapted and used whenever possible. All the scales for the constructs used in this study (with the exception of complementary competencies and environmental variables) were used previously in a nationwide study of purchasing agents (Jap &

Weitz 1994), where they demonstrated acceptable levels of reliability and construct validity. The items were identically worded for both the buyer and supplier.

Construct Validity at Time One

Construct validity is the extent to which an observation measures the concept it is intended to measure. The goal of measure validation is to demonstrate the internal consistency, reliability, and unidimensionality of the constructs.

Selecting a Method

Historically, researchers have advocated the calculation of item-total correlations as a first step in the measurement validation process (Nunnally 1978; Churchill 1979). However, an item-total analysis does not account for external consistency, and hence, may fail to discriminate between sets of indicators that represent different, though correlated factors (Gerbing & J. C. Anderson 1988).

Principal components analysis and common factor analysis have also been used to ascertain construct validity. However, these have significant shortcomings in the measurement of organizational constructs because they often assume uncorrelated traits or factors and their use on data exhibiting correlated factors can produce distorted factor loadings and incorrect conclusions about the number of factors (Bagozzi 1983). Moreover, both of these approaches

assume the absence of measurement error (Lawley & Maxwell 1971). This is particularly problematic in the measurement of organizational constructs, since covariance among organizational properties and error in measurement is expected to occur.

As a result, confirmatory factor analysis was used in the present analysis because it allows for explicit representation of the degree of correspondence between observed measures and concepts. A multiple-indicator measurement model of the constructs of interest allows for unambiguous assignment of meaning to estimated constructs. A first-order, single-factor model for each set of congeneric items per construct was estimated using full-information maximum-likelihood (MLE) techniques in LISREL 8.03 (Jöreskog & Sörbom 1993). All of the measurement model estimation in this chapter and the next was conducted using this method and statistical package. MLE estimation was chosen because it provides consistent estimates that are also asymptotically normal, unbiased, consistent, and efficient (Kmenta 1971); these parameters are particularly useful in the derivation of asymptotically valid tests, and are not available with ordinary least squares, or two- or three-stage least squares. Items with low or nonsignificant loadings or items that loaded on multiple factors were eliminated from the analysis.³

³ When this did occur, only one or at the most two items were eliminated per construct.

The measurement models were initially estimated for buyers and suppliers separately. Each buyer survey was treated as an independent response throughout the analysis in this study in order to provide the large sample size necessary for stable parameter estimation. Since the statistical properties of MLE estimators are asymptotic; hence, they require information from higher order moments and are only true for large samples. The complete data analysis was also conducted with truly independent buyer surveys--only one reported relationship per buyer ($n=129$), and the results were not significantly different, so the multiple responses from buyers were retained.

Problems with Environmental Complexity Scale

Estimating a unidimensional factor model for environmental complexity was difficult. Several items loaded on more than one construct and Heywood cases (negative error variances) were observed. This could be due to the fact that the construct itself is too broadly defined--encompassing competitor, product, and consumer forces--and impossible to measure as a unidimensional phenomenon. Unfortunately, because of space constraints in the survey, it was not possible to include more than five indicators for this construct. Additional indicators might have provided the stability needed to measure environmental complexity more completely using multiple dimensions.

It is also likely that the informants had difficulty in establishing a reference point for their reports. The measures were intended to measure the dyadic external environment surrounding the informants within the product category being purchased. Pretests indicated that buyers and suppliers were only able to report on their immediate environment with confidence. Often, the informants were not able to comment on environmental forces that shaped their firms' decisions beyond their SBU.

If the informants did not read the directions carefully, they might have completed the measures using their own industries as referents, which could account for the problematic fit. Several alternative models, including higher-order factor models (Gerbing & J. C. Anderson 1984) were estimated, in an attempt to recover as much usable data as possible. Because of these problems, it was difficult to unambiguously assign meaning to the estimated constructs. The end result was that the measures for environmental complexity could not produce an adequate measurement model, and had to be eliminated from the study altogether.

Measurement Model Evaluation

Table 4-3 contains the scale items, factor loadings, standard errors, and reliabilities for the latent constructs for buyers and suppliers separately. Reliability was estimated using the reliability formula of Jöreskog (1971). This expression is superior to coefficient alpha in that it

does not assume equal item reliabilities within a confirmatory factor analysis context and will not underestimate the reliabilities when the scale is comprised of a small number of items.

Inspection of the factor loadings and standard errors at this point is informative in assessing the internal fit of these single-factor, measurement models. As a rule, the loadings should be approximately .6 and higher in value, and the standard errors should be small, approximately .4 or less (Bagozzi & Yi 1988). All parameters should be significant and the scale reliabilities should be approximately .6 or higher. Convergent validity refers to the degree to which multiple attempts to measure the same concept are in agreement. Factor loadings with t-values of two or more demonstrate evidence of convergent validity.

Table 4-4 contains the summary information on the measurement models, completely standardized correlation matrix between constructs, and means for each construct for buyers and suppliers, respectively. The overall chi-square is a likelihood ratio statistic testing a hypothesized model against the alternative that the covariance matrix is unconstrained. Although this is useful in gaining information about a statistically false model, the chi-square test is well known for its sensitivity to sample size. As the sample size increases the chances of rejection also increases, regardless of whether the model is true or false. Hence, the significant chi-squares listed in this table for

the measurement models should not be taken too seriously as an indicator of overall model fit. The chi-square will be more useful when nested, alternative models are tested in the next chapter.

Bentler's (1990) comparative fit index (CFI) is one of many goodness of fit indices (GFI) available to assess the fit of a model to data. These indices range in possible values between zero and one, indicating a lack of fit and perfect fit between the theoretical model's covariance matrix to the observed covariance matrix, respectively. The CFI is chosen over Bentler and Bonnet's (1980) normed fit index (NFI) and non-normed fit index (NNFI). The NFI has been shown to significantly underestimate fit when sample sizes are less than 200 (Marsh, Balla, & McDonald 1988) and will vary considerably in value for the same model and data depending on whether MLE or generalized least squares is used (Tanaka 1987). The fit indices provided by LISREL do not have the same underestimation bias in samples of less than 200, but do demonstrate a notable sample size effect. This is to say that as the sample size increases, the fit indices tend to increase as well (Marsh et al. 1988). The CFI is an index that is able to avoid extreme under- or over-estimation that occurs with other GFIs.

Discriminant validity is the degree to which measures of different concepts are distinct. This is typically assessed by constraining the correlation parameter between two constructs to unity and performing a chi-square difference

test on the values obtained for the constrained and unconstrained models (Jöreskog 1971). If the chi-square for the unconstrained model is less than the chi-square for the constrained model, this indicates that the traits are not perfectly correlated and that discriminant validity is achieved (Bagozzi & Phillips 1982).

A more stringent test of discriminant validity was developed by Fornell and Larcker (1981). They recommend examining the amount of variance captured by the construct in relation to the amount of variance due to measurement error. Unlike the previous approach, this test recognized that measurement error can vary in magnitude across a set of construct indicators. The correlations that did not meet this requirement are underlined in the table. The chi-square difference test proposed by Joreskog (1971) was then conducted on these pairs and in every case, the constructs were shown to be significantly different.

The purpose of this section was to demonstrate that the observed measures appear to be corresponding to the constructs that they are intended to measure. Although it may appear upon close inspection that an occasional parameter loading or scale reliability fell below "acceptable" levels of model criteria,⁴ this is typical when estimating a large measurement model with multiple indicators on a large data set. On balance, the constructs do appear to be

⁴ Researchers continue to debate on what the exact levels of acceptability are on some evaluative criteria.

demonstrating convergent and discriminant validity sufficient for progressing to the next step of estimating the combined measurement model between buyers and suppliers.

Construct Equivalence

Given the convergent and discriminant validity of the observed measures among buyers and suppliers separately, the next step was to show that the constructs were the same across the two groups (e.g., goal compatibility among buyers is also goal compatibility among suppliers). The most important test of construct invariance is to show scaling equality between two constructs. This is done by testing whether the relationship between the observed indicators and their respective factors are equal ($\lambda =$). Given scaling equality, the next test assesses equality of measurement error variances across groups ($\lambda =$, $\delta =$). The most stringent test involves whether the covariances of the latent variables are equivalent ($\lambda =$, $\delta =$, $\phi =$).

These constraints were tested using a series of two-group tests. The first order factor model for each construct was simultaneously estimated in the two groups. A non-significant chi-square means that the hypothesized constraint cannot be rejected. These tests were not conducted for constructs with only two indicators (demand munificence and dynamism) because of an insufficient number of degrees of freedom necessary to conduct the tests. These constructs are only identified when imbedded in a system of other

constructs. However, the magnitude of the loadings and standard errors for each construct are similar across the two groups.

The results are displayed in Table 4-5. For the most part, the chi-squares for scaling equality are nonsignificant, and remain nonsignificant when measurement error constraints are added. All of the chi-squares are significant for tests of covariance equality. Collectively, the results support construct scaling and measurement error invariance across buyers and suppliers.

Summary

The purpose of this chapter was to describe the methodology, measurement development, and preliminary construct validity results. A multiple key-informant approach was selected because the phenomenon of interest is a relationship involving two member firms and interorganizational properties of their relationship. Data were initially collected via a mail survey to a sampling frame of 400 buyer-supplier dyads and was repeated one year later. Evaluation of the first order measurement model results indicate adequate convergent and discriminant validity among constructs in the buyer and supplier groups, as well as equality of scaling and measurement error between corresponding constructs across the two groups.

Table 4-1
Participating Firms and Divisions

<u>Manufacturing Firm</u>	<u>Procurement Division</u>
Computer	Personal Computers
Photography Equipment	Purchasing & Materials
Chemicals	Materials & Supplies Engineering Sourcing External Affairs Contract Services Packaging Warehousing
Brewery	Operations & Support Materials

Table 4-2

Characteristics of the Exchange Relationship

<u>Characteristic</u>	<u>Mean (standard deviation)</u>
Annual level of purchases * adjusted for outliers	\$ 63,592,374* (\$ 413,181,403)
Percentage of supplier's annual sales in product category	26.8% (31.9%)
Number of years the firms have done business together	13.7 (11.6) years
	<u>Frequency of response (% of total)</u>
Product category purchased	
capital equipment	58 (21%)
MRO supplies	41 (15%)
sub assemblies	29 (11%)
components	59 (22%)
services	44 (16%)
raw materials	3 (1%)
packaging	19 (7%)
Buytype	
complex, first time purchases	36 (15%)
routine, meant to restock	69 (28%)
mixture of first time, routine, and modified routine purchases	144 (58%)
Relationship Phase	
exploration	31 (11%)
buildup	85 (31%)
maturity	139 (51%)
decline	18 (7%)
deterioration	1 (.4%)

Table 4-3

Scale Items, Factor Loadings, Standard Errors, and
Reliabilities at Time One

All estimates are based on the correlation matrix as input.

T-values are listed directly below each parameter estimate.

BUYERS N=275

	<u>λ</u>	<u>$\theta\delta$</u>
<u>GOAL COMPATIBILITY</u> (Reliability = .87)		
They share the same goals in the relationship.	.85	.28
	16.7	8.1
They have compatible goals.	.84	.29
	16.6	8.2
They support each other's objectives.	.81	.34
	15.7	9.0
<u>COMPLEMENTARY COMPETENCIES</u> (Reliability = .80)		
They have complementary strengths that are useful to their relationship.	.77	.40
	14.6	9.5
They contribute different resources to the relationship that help them achieve mutual goals.	.78	.39
	14.8	9.3
They have separate abilities that, when combined together, enable them to achieve goals beyond their individual reach.	.71	.50
	12.8	10.3
<u>TRUST</u> (Reliability = .89)		
Our promises to each other are reliable.	.84	.29
	17.0	10.0
We are very honest in dealing with each other.	.85	.27
	17.4	9.8
We trust each other.	.91	.17
	19.3	8.3
We would go out of our way to help each other out.	.90	.19
	18.9	8.8
We consider each other's interests when problems arise.	.83	.31
	16.8	10.1

Table 4-3 (continued)

<u>DEMAND MUNIFICENCE</u> (Reliability = .66)	λ	$\theta\delta$
The demand for the supplier's product(s) is high.	.48	.71
	5.9	8.9
The demand for the buyer's product(s) is high.	.90	.36
	7.6	3.0
<u>DYNAMISM</u> (Reliability = .75)	λ	$\theta\delta$
Marketing practices in our industry are constantly changing.	1.1	-.14
	7.2	-.44
The product mixes in our industry change frequently.	.39	.84
	5.0	10.1
DEVELOPMENT OF		
<u>STRATEGIC ADVANTAGES</u> (Reliability = .84)	λ	$\theta\delta$
They work on joint projects tailored to their needs.	.67	.56
	11.9	10.6
They work together to exploit unique opportunities.	.81	.35
	15.5	9.0
Both companies are able to come up with innovative solutions to problems.	.74	.45
	13.7	10.0
Both companies are always looking for synergistic ways to do business together.	.77	.40
	14.6	9.6
<u>STRATEGIC ADVANTAGES</u> (Reliability = .80)	λ	$\theta\delta$
They have gained strategic advantages over their competitors.	.72	.48
	13.2	9.7
The relationship has not resulted in strategic advantages for them. (R)	.60	.63
	10.2	10.7
They have gained benefits that enable them to compete more effectively in the marketplace.	.78	.40
	14.4	9.0
The relationship has not resulted in strategically important outcomes. (R)	.71	.49
	12.7	9.9

Table 4-3 (continued)

<u>JOINT PROFITS</u> (Reliability = .82)	<u>λ</u>	<u>$\theta\delta$</u>
They have achieved a high level of joint profits between them.	.83	.32
	15.2	6.7
They have generated a lot of profits together.	.81	.35
	14.7	7.3
They have increased joint profits shared between them.	.67	.55
	11.6	9.9
<u>IDIOSYNCRATIC ASSETS</u> (Reliability = .75)	<u>λ</u>	<u>$\theta\delta$</u>
If this relationship were to end, they would be wasting a lot of knowledge that's tailored to their relationship.	.67	.57
	11.1	9.3
If either company were to switch to a competitive buyer or vendor, they would lose a lot of the investments made in the present relationship.	.76	.42
	13.2	7.5
They have invested a great deal in building up their joint business.	.71	.50
	12.1	8.7

SUPPLIERS N=220

<u>GOAL COMPATIBILITY</u> (Reliability = .79)	<u>λ</u>	<u>$\theta\delta$</u>
They share the same goals in the relationship.	.80	.36
	13.6	8.8
They have compatible goals.	.85	.28
	15.0	8.0
They support each other's objectives.	.93	.13
	17.4	4.9
<u>COMPLEMENTARY COMPETENCIES</u> (Reliability = .78)	<u>λ</u>	<u>$\theta\delta$</u>
They have complementary strengths that are useful to their relationship.	.76	.42
	11.9	8.5
They contribute different resources to the relationship that help them achieve mutual goals.	.79	.37
	13.0	7.7
They have separate abilities that, when combined together, enable them to achieve goals beyond their individual reach.	.64	.59
	9.5	9.4

Table 4-3 (continued)

<u>TRUST</u> (Reliability = .89)	<u>λ</u>	<u>$\theta\delta$</u>
Our promises to each other are reliable.	.82	.33
	13.9	7.7
We are very honest in dealing with each other.	.78	.39
	12.8	8.4
We trust each other.	.83	.32
	14.0	7.6
We would go out of our way to help each other out.	.70	.50
	11.2	9.0
We consider each other's interests when problems arise.	.78	.39
	13.0	8.3
<u>DEMAND MUNIFICENCE</u> (Reliability = .68)	<u>λ</u>	<u>$\theta\delta$</u>
The demand for the supplier's product(s) is high.	.61	.62
	7.9	7.5
The demand for the buyer's product(s) is high.	.82	.33
	9.8	3.0
<u>DYNAMISM</u> (Reliability = .55)	<u>λ</u>	<u>$\theta\delta$</u>
Marketing practices in our industry are constantly changing.	.50	.46
	5.4	3.1
The product mixes in our industry change frequently.	.73	.62
	6.4	9.7
DEVELOPMENT OF		
<u>STRATEGIC ADVANTAGES</u> (Reliability = .82)	<u>λ</u>	<u>$\theta\delta$</u>
They work on joint projects tailored to their needs.	.61	.63
	9.3	9.6
They work together to exploit unique opportunities.	.75	.42
	12.2	8.8
Both companies are able to come up with innovative solutions to problems.	.75	.44
	12.2	8.7
Both companies are always looking for synergistic ways to do business together.	.78	.39
	12.9	8.4

Table 4-3 (continued)

<u>STRATEGIC ADVANTAGES</u> (Reliability = .78)	<u>λ</u>	<u>$\theta\delta$</u>
They have gained strategic advantages over their competitors.	.70 10.4	.51 8.7
The relationship has not resulted in strategic advantages for them. (R)	.64 9.1	.59 9.2
They have gained benefits that enable them to compete more effectively in the marketplace.	.73 11.9	.47 7.9
The relationship has not resulted in strategically important outcomes. (R)	.68 10.4	.54 8.7
<u>JOINT PROFITS</u> (Reliability = .86)	<u>λ</u>	<u>$\theta\delta$</u>
They have achieved a high level of joint profits between them.	.91 16.0	.19 4.7
They have generated a lot of profits together.	.85 14.4	.26 6.2
They have increased joint profits shared between them.	.68 10.9	.54 9.4
<u>IDIOSYNCRATIC ASSETS</u> (Reliability = .63)	<u>λ</u>	<u>$\theta\delta$</u>
If this relationship were to end, they would be wasting a lot of knowledge that's tailored to their relationship.	.51 6.9	.74 9.2
If either company were to switch to a competitive buyer or vendor, they would lose a lot of the investments made in the present relationship.	.68 9.4	.54 7.1
They have invested a great deal in building up their joint business.	.62 8.5	.62 8.1

Table 4-4

Measurement Models and Correlation Matrices, Means,
and Standard Deviations at Time One

BUYERS MEASUREMENT MODEL $\chi^2(df)$: 626(224)

BENTLER'S CFI .88

CORRELATION MATRIX (completely standardized)

	<u>Mean</u>	<u>Std Dev</u>	1	2	3	4	5	6	7	8
1 GOAL	5.1	1.1	1							
2 CCOMP	5.2	.93	.81	1						
3 MUNIF	4.7	1.0	.25	.23	1					
4 DYNAM	4.6	1.2	-.02 ^b	-.08 ^b	.29	1				
5 SADEV	5.0	1.0	.78	.91 ^a	.16	.05 ^b	1			
6 SADVS	4.9	1.1	.71	.82 ^a	.14	-.10 ^b	.77	1		
7 JPROF	4.3	1.2	.48	.44	.28	.15	.49	.63	1	
8 ASSET	4.7	1.2	.36	.57	.13 ^b	.24	.57	.61	.44	1

All correlations are significant at alpha=.05, with the exception of those marked with a "b."

^a Failed to meet Fornell and Larcker (1981) test of discriminant validity.

GOAL = goal compatibility

CCOMP = complementary competencies

MUNIF = demand munificence

DYNAM = dynamism

SADEV = development of strategic advantages

SADVS = strategic advantages

JPROF = joint profits

ASSET = idiosyncratic assets

Table 4-4 (continued)

SUPPLIER MEASUREMENT MODEL $\chi^2(df): 626(224)$ BENTLER'S CFI .88CORRELATION MATRIX (completely standardized)

	Std									
	Mean	Dev	1	2	3	4	5	6	7	8
1 GOAL	5.4	1.2	1							
2 CCOMP	5.5	.98	.87 ^a	1						
3 MUNIF	5.1	1.2	.42	.48	1					
4 DYNAM	4.7	1.4	.22	.27	.50	1				
5 SADEV	5.3	1.1	.84 ^a	.89 ^a	.50	.30	1			
6 SADVS	5.4	1.1	.70	.79	.44	.33	.82 ^a	1		
7 JPROF	4.4	1.2	.62	.62	.40	.25	.57	.62	1	
8 ASSET	5.7	.92	.56	.66	.34	.32	.68	.73	.51	1

All correlations are significant at alpha=.05.

^a Failed to meet Fornell and Larcker (1981) test of discriminant validity.

GOAL = goal compatibility

CCOMP = complementary competencies

MUNIF = demand munificence

DYNAM = dynamism

SADEV = development of strategic advantages

SADVS = strategic advantages

JPROF = joint profits

ASSET = idiosyncratic assets

Table 4-5
Tests of Construct Invariance Across
Buyers and Suppliers at Time One

Chi-square statistic (degrees of freedom)
P-value

<u>CONSTRUCT</u>	<u>$\lambda =$</u>	<u>$\lambda =, \delta =$</u>	<u>$\lambda =, \delta =, \phi =$</u>
Goal Compatibility	9.4(3) .024	27.7(6) .0001	842(6) .00
Complem. Competencies	2.2(3) .54	4.0(6) .68	453(6) .00
Development of Strategic Advantages	14.1(8) .08	15.1(12) .24	728(12) .00
Strategic Advantages	17.5(8) .03	18.2(12) .11	17.5(8) .03
Joint Profits	1.6(3) .65	11.3(6) .08	593(6) .00
Idiosyncratic Assets	3.2(3) .37	9.6(6) .14	284(6) .00

$\lambda =$ equality of scaling

$\lambda =, \delta =$ equality of measurement error

$\lambda =, \delta =, \phi =$ equality of covariance

CHAPTER 5 RESULTS

Overview

The analysis and results are articulated in detail in this chapter. The analysis strategy involves an incremental model building approach in which measurement models are initially assessed and then structural causal models are estimated. Within each of these sets of analyses, the longitudinal models follow the cross sectional results. For example, the presentation of the measurement model analyses begins with estimation of a dyadic measurement model for buyer-supplier dyads at time one. This is followed by the measurement results from time two and estimation of the longitudinal measurement model. The last half of the chapter presents the structural models, beginning with the cross sectional results and followed by the longitudinal results.

The Dyadic Measurement Model

In the previous chapter, measurement models for the constructs were estimated for buyers and suppliers and construct invariance was demonstrated across the two groups. The next step is to pool the independent buyer and supplier

responses into a dyadic measurement model that taps a single construct. This approach also allows for the partitioning of error variance in measurements into constituent components so as to assess the reliability and validity of informant reports.

Model Choice

Jöreskog (1971) was the first to introduce a confirmatory analysis strategy based on a multitrait-multimethod (MTMM) framework. In a MTMM framework, a set of traits are factorially combined with a set of measurement methods, allowing examination of variance due to traits, methods, and random error. In a multiple informant setting, informants are treated as methods and a measurement model in which their observed scores are linked to the latent construct of interest and biases due to measures and informants are explicitly estimated.

However, a strict interpretation of the original Campbell and Fiske (1959) MTMM framework is of limited use in a multiple informant setting because of their overly restrictive assumptions (Bagozzi & Yi 1994; Peter 1981; Widaman 1985). They assume that measures are equally reliable and methods are orthogonal, uncorrelated with traits, and affect all traits equally. Their approach also does not supply critical information about construct

validity, such as statistical tests of convergent and discriminant validity or the amount of variation due to traits, methods and error.

In response to this, a first-order, confirmatory factor analysis model was developed that allowed the methods to correlate freely and affect the measures to various degrees. The model also provides measures of overall model fit, parameter estimates, and significance tests of convergent and discriminant validity (Cote & Buckley 1987; Widaman 1985). Subsequent work in the area has even allowed estimation of trait-method correlations (Kumar & Dillon 1992), and separation of specific and random error variance (J. C. Anderson 1985; Kumar & Dillon 1990).

Unfortunately, these approaches are so unwieldy that their practical application is virtually impossible. They require at least three or more items from three or more informants on each of three or more traits, thus demanding at least three times as many measures as the traditional MTMM analysis.¹ Another limitation of these approaches is that they do not yield "method-free" and "trait-free" interpretations (Kumar & Dillon 1992) because individual factor loadings take different values that correspond to distinct trait-method pairings. Finally, these models

¹ These models were initially estimated in this study for constructs that had four or more indicators. However, solutions would often fail to converge and identification problems inhibited tests of parameter significance.

typically lead to overfitting. Hence, many parameters in these models fail to converge and improper solutions occur frequently (Wothke 1984, 1987).

As a result, researchers recommend using the correlated uniqueness model as depicted in Figure 5-1 (Bagozzi & Yi 1994; Kenny 1979; Kenny & Kashy 1992; Marsh 1989). This approach specifies only trait factors ($\xi_1-\xi_4$); no method factors are created. Instead, the disturbances ($\delta_{11}-\delta_{88}$) of the observed scores are allowed to correlate ($\theta_{21}-\theta_{85}$) within the same method. All of the items are intercorrelated with each other ($\phi_{21}-\phi_{43}$) since the items are designed to tap a common factor.² This approach overcomes the shortcomings of the first-order confirmatory analysis models in that it allows measure uniqueness from the same method to correlate freely, provides for less ambiguous interpretation of method factors, and considerably reduces the possibility of ill-defined solutions.

However, the correlated uniqueness approach does assume that maximally different methods are used and its error terms still confound random error with measure specificity. In this study, the methods maximally differ in that the informants are members of two independent companies reporting

² Although Anderson (1985) has suggested modelling a higher order factor to represent this common factor among the items, the higher order factor model often fails to converge and yields improper solutions (Bagozzi & Yi 1994).

on properties of a joint relationship. With regard to the confounding of random error with measure specificity, Bagozzi and Yi (1994) maintain:

The inclusion of separate correlated uniquenesses for each pair of measures from a common method overcomes the restrictive assumption that methods have unidimensional effects. But in so doing, parsimony is lost and the interpretation of each correlated uniqueness is made difficult. When a unidimensional method factor is found to hold, it is frequently reasonable to interpret its effects as systematic error due to the method. However, when some correlated uniquenesses are significant, others nonsignificant, or when some are positive and others negative, it may be difficult to explain the source of the differing patterns of influence. (p. 11, emphasis mine)

In this study, a unidimensional method factor was observed for each construct and its effects were interpreted as systematic method error.

Estimation

One drawback to the correlated uniqueness model and the first-order confirmatory model is that the smallest combination of traits and methods needed to estimate the models are either (1) three traits and three methods, (2) four traits and two methods, or (3) two traits and four methods. As such, the correlated uniqueness model was initially estimated for constructs with four or more indicators: trust, development of strategic advantages, strategic advantages, and idiosyncratic assets.

The minimization process for strategic advantages and idiosyncratic assets was problematic, making it impossible to recover the parameter estimates in these two models.

Parameter estimates were obtained in the trust and development of strategic advantage models, but identification problems inhibited calculation of parameter significance tests. Table 5-1 displays the parameter estimates for trust. The estimates for all other constructs initially estimated followed a similar pattern and led to similar conclusions; in the interest of parsimony, only the results for trust are presented here.

Although tests of parameter significance were not attainable, convergent validity can be assessed by inspection of the factor loadings and correlations among factors. The loadings for the suppliers (.42, .30, .40, .41, and .41) were all systematically lower than the buyer loadings (.77, .93, .87, .84, and .82), indicating that the supplier ratings contain less trait variance than the buyer ratings. However, the buyer loadings are quite large and the correlations among the five factors are very high (.75 to 1.0), indicating that the factors seem to be tapping a common construct.

The method or informant effects can be observed from the correlations among unique variances. In general, the method estimates for the supplier are systematically higher than buyer method estimates. Collectively, the pattern of these results and the loading estimates indicates that substantial informant bias exists in the pooled data.

Sources of Informant Bias

Informant bias may result for various reasons. First, the informants may not be qualified or have difficulty observing the phenomena or constructs of interest in the study. However, great lengths were taken in this study to insure that all items referred to constructs that the informants were knowledgeable about and had direct experience with. The average age of the sampled relationships was nearly four years and informants averaged approximately fifteen years of experience in sales and purchasing. Moreover, the average response to items specifically tapping their level of knowledge on the constructs of interest was 5.6 on a 7-point scale. These results mitigate the likelihood that informant competency is driving the observed bias.

Second, informant bias can increase when informants are asked to make complex social judgments concerning aspects of the relationship. In the present study, individuals are asked to report about interpersonal relationship dynamics and organizational properties, which can have characteristics distinct from the informants themselves. John and Reve (1982) have shown that adequate convergent validity across the dyad is achievable for objective, structural variables such as frequency of interactions, formalization of activities, etc., but inadequate validity occurs for constructs such as goal

compatibility, domain consensus, and evaluation of accomplishments. This certainly could contribute to the informant bias observed here.

Third, informant bias can increase if informants use different information or events to form social judgments or give different weights to different information. These last two reasons are likely to be the factors behind the high informant bias estimates observed here. It may be that informants recalled different instances in their past history or weighted these instances differently when formulating their judgment ratings on the constructs of interest.

There is evidence of perceptual differences in the data. Following Jones, Johnson, Butler, and Main (1983) and Kumar et al. (1993) , perceptual agreement was assessed in two ways. First, the difference between the buyer and supplier scores on each of the eight constructs were computed and tested against the null hypothesis that there were no differences. The results are presented in the first column of Table 5-2. The t-values ranged from 1.0 to 11; however, six out of the eight pairs demonstrated significant differences. Second, the correlation between the buyer and supplier responses on each of the eight constructs were computed. The second column of Table 5-2 indicates that although five out of the eight pairs are significantly correlated with each other, the correlations are well below

unity, in fact less than .25. These two assessments point to significant differences in perception between buyers and suppliers.

As a final check, the lack of perceptual agreement was examined in relation to informant competency (Kumar et al. 1993). Using the same measure of perceptual difference as in the previous test, buyer-supplier dyads were split according to the informants' level of competency. An informant was classified as highly competent if they were above: (1) the median on the number of years they worked with each other, (2) the median on the number of years of sales or purchasing experience, and (3) five on all of the items tapping their level of specific knowledge on the constructs of interest. From this, three groups of dyads were formed: (1) both informants were highly competent, (2) both informants had little competence, and (3) one informant was high and the other low. Perceptual differences were compared initially between the mixed and low groups and no significant differences were found on any of the eight constructs of interest. These two groups were then pooled and contrasted to the high competency group, and again, no significant differences were found. Hence, it appears that differences in perception are not related to issues of competency.

Given the lack of fit in the correlated uniqueness model, and subsequent assessments of potential sources of the informant bias, it is impossible to go to the next step of estimating a dyadic structural model. It is important to

note that the problem at this point is the pooling of data, and not the measures themselves. The previous chapter demonstrated convergent and discriminant validity among constructs at the monomethod level, indicating that the measures are measuring what they were intended to measure and not measuring what they were not intended to measure. This inability to pool the data across multiple informants is also a common occurrence in the channels literature when multiple informants are utilized (J. C. Anderson & Narus 1990; John & Reve 1982; Kumar et al. 1993; Phillips 1981), with the exception of Bagozzi and Phillips (1982) and J. C. Anderson (1987). More research is needed that explicitly investigates the factors that lead to this lack of model fit.

In light of this, the analysis strategy must take a different turn. From this point on, all analyses will now be estimated for buyers and suppliers separately, and the results compared across the groups. The rationale here is that although the pooled data across the dyad cannot be used, the degree to which buyers and suppliers see the phenomenon similarly can still be assessed.

Measurement at Time Two

Measurement adequacy in the second data collection was conducted in the same manner as time one. First-order, single-factor models for each set of congeneric items per construct were estimated for buyers and suppliers separately.

Table 5-3 contains the scale items, factor loadings, standard errors, and reliabilities for the latent constructs for buyers and suppliers. As before, the results are positive. Factor loadings are generally high (.70-1.0), with small standard errors (.4 and less). The parameters are significant and reliabilities are also high. All of the factor loadings have t-values of two or more, evidencing convergent validity.

Table 5-4 contains the summary information on the measurement models, completely standardized correlation matrix between constructs, and means for each construct for buyers and suppliers. Although the chi-squares for the models are significant, the CFIs are high (.88 for buyers and .92 for suppliers), demonstrating a good fit to the data. Fornell and Larcker's (1981) discriminant validity tests were conducted for each pair of constructs, and when this test was not passed, chi-square difference tests between models in which the correlation between the constructs was freely estimated and set to one were conducted. All of these tests were passed, demonstrating discriminant validity between the constructs.

Longitudinal Measurement Model

Given adequate convergent and discriminant validity between constructs at time one and two for buyers and suppliers, the next step is to show equivalent measurement properties among the constructs over time.

The longitudinal measurement model is simply a special case of the general MTMM and general longitudinal models. One advantage of the longitudinal model is that it allows for estimation of item-specific error. In a cross sectional study, this component is typically lumped into the random error term. The consequence of this is reduced reliability of the individual item and any resulting composite scores involving the item.

The longitudinal measurement model for four items of a common factor measured at time one and two is shown in Figure 5-2. Unlike the cross sectional model, the longitudinal model involves estimation of an item-specific effect for each item. Table 5-5 contains the parameter estimates for the development of strategic advantages for suppliers as an illustration. The loading patterns for all of the other constructs for buyers and suppliers followed a similar pattern. Parameter estimates for only one construct is presented here, due to space constraints.

Perfect temporal invariance of the measures implies that the relation between an observed item and the latent factor is invariant, item-specific factors are constant, and random error is stable (Wheaton, Muthen, Alwin, & Summers 1977). These three characteristics are respectively tested over the two time periods using the following series of hierarchically nested models: (1) a model in which the factor loadings are constrained to be equal ($\lambda_{11}=\lambda_{21}=\lambda_{62}\dots$), (2) a model in which the factor loadings and item-specific effects are

constrained ($\lambda_{11}=52$, $\lambda_{21}=\lambda_{62}\dots$; $\gamma_{13}=\gamma_{53}$, $\gamma_{24}=\gamma_{64}\dots$), and (3) a model in which the factor loadings, item-specific effects, and random error effects are constrained ($\lambda_{11}=52$, $\lambda_{21}=\lambda_{62}\dots$; $\gamma_{13}=\gamma_{53}$, $\gamma_{24}=\gamma_{64}\dots$; $\delta_1=\delta_5$, $\delta_2=\delta_6\dots$).

These models are compared to a "baseline" measurement model in which no constraints are placed on the factor loadings, item-specific effects, or random error terms (Figure 5-2). A null model ("no factors") is not estimated. Although null models are useful in the calculation of goodness-of-fit indices, Sobel and Bohrnstedt (1985) note that the null model should primarily be used in purely exploratory contexts. Comparing the constrained models (1)-(3) to a null model doesn't really indicate whether the constrained model represents a substantial improvement in knowledge. If one already knows that non-zero correlations exist among the variables, then the baseline model should depend on the theoretical context within which the hypothesis is being considered. Using a null model as a baseline is to use a baseline that is already rejected by current knowledge.

Table 5-6 displays the four estimated longitudinal measurement models for each construct for buyers and suppliers. Sequences of chi-square difference tests between adjacent models are useful in assessing the impact of each set of constraints placed on the model, thereby isolating where fit or lack of fit arises in a model. Each chi-square difference is asymptotically independent (Steiger, Shapiro, & Browne 1985). If the value is greater than the critical

value associated with the difference in degrees of freedom between the two models, the hypothesized constraint is rejected. In the present context, if the parameters being constrained are not equal, the imposition of the constraint should significantly reduce the model fit, creating a high chi-square, and a significant chi-square difference statistic.

The model summaries in Table 5-6 indicate that imposition of the nested constraints does not result in significant chi-square differences.³ Additionally the CFIs for the free factor model do not appear to be adversely affected to any great degree by the imposition of constraints. Hence, one can conclude at this point that the relationship between the observed measures and their respective factors, along with item-specific factors, and random error appears to be invariant over the two time periods.

Structural Model Analysis

The focus of the discussion now turns to analysis of the structural model in figure 3-6 (cf., J. C. Anderson & Gerbing 1988). The structural model specifies the causal relations

³ These models were not estimated for demand munificence or dynamism, because two indicators per construct were not sufficient to identify the system.

of the constructs to one another, in addition to the specification of the observed indicators to their latent variables.

Since the variables of interest surrounding the phenomena of strategic advantage development cannot be independently manipulated, the only viable alternative is to use statistical control in order to measure the cause-effect relationships in the system of variables. Accordingly, this phase of the analysis involves evaluating the plausibility of the theoretically derived model of figure 3-6 as well as rejection of models that are found to be inconsistent with the empirical data.

One should bear in mind that structural equation modeling techniques are only testing theoretically-derived, empirical predictions (James, Mulaik, & Brett 1982; Mulaik 1986; Mulaik 1987). If a model is shown to be consistent with the empirical data, this is not evidence that the model is necessarily true, just consistent. It is possible that alternative but false models may be consistent with an empirical data set. However, one can determine whether models are inconsistent with the data, so in this sense, inference is asymmetric. As such, inference will depend heavily on the logic of falsification.

Falsification occurs when alternative causal theories about the relationships between the variables are shown to be inadequate in accounting for the covariances among the observed variables (Popper 1968). Since false models may be

potentially consistent, theory is key throughout this process. Theory should drive the specification of the structural model and alternative models. At no point should the analysis become an empirically inductive exercise.

As before, latent variables are used in estimating the structural model. Williams and Podsakoff (1989) detail why past techniques in the analysis of longitudinal panel data such as cross-lagged correlation analysis, dynamic correlation analysis, the frequency of change in product moment technique, and path analysis are inferior compared to a latent variable model. By keeping the system latent, one can (James et al. 1982) (1) explicitly model measurement error, which has been shown to have detrimental effects on coefficient estimates (Busemeyer & Jones 1983; Kenny 1979; Markus 1979; Rogosa 1980), (2) allow for the distinction between theoretical constructs and concrete measures, (3) simultaneously examine reciprocal relationships between variables, and (4) explicitly test the equality of parameters between groups.

However, at this point there are two important changes from the estimation approach used with the measurement models. Because of the complexity of the model and the reduced sample size in time two, a single indicator for each construct is used instead of multiple indicators.⁴ A multiple indicator analysis of the longitudinal model would

⁴ This is why construct validation and development prior to this point is critical.

require the estimation of 131⁵ parameters, whereas a single indicator composite model with identifying restrictions would involve 37.⁶

The second important change is that generalized least squares (GLS) estimation is used instead of maximum-likelihood (MLE). MLE involves a more complicated nonlinear fitting function and explicit solutions are not always found. Like MLE, GLS provides asymptotically efficient, consistent estimates with asymptotic multinormal distributions so that tests of statistical significance are possible (Browne 1982; Browne 1984). This makes GLS a superior choice over two- or three-stage least squares. GLS is superior to ordinary least squares in that the former weights observations to correct for unequal variances or nonzero covariances of the disturbances. GLS is also less restrictive than MLE in that it does not require the assumption of multivariate normality among the observed variables.

In the next few sections, the structural model is built incrementally, so that the reader can assess changes and consistencies in the model at both a static and dynamic level. The results for time one and two are presented first, and then the longitudinal structural analysis is detailed.

⁵ This is comprised of 48 factor loadings and 48 error terms, 6 correlated errors, 23 betas, and 6 construct correlations.

⁶ This includes 21 betas and 16 construct correlations.

In keeping with the conceptual framework of Chapter 3, hypothesis testing is reserved to the longitudinal analysis.

Cross Sectional Results

Identifying restrictions. Composite models can often lead to identification problems, particularly when the sample size is relatively small and the model to be estimated is complex. In this case, it is helpful to make assumptions about the data so as to provide for more stable estimates and inference. The most common restrictions to place on the system involve information about scale reliabilities for estimating the effect of the construct and random error on the observed indicator (James et al. 1982; Kenny 1979; Rogosa 1979).

The first restriction is to set the paths from the indicator to the latent factor equal to the square root of the reliability. This value represents the maximum value possible adjusted for measurement error in scales. The second restriction is to set the error variance of the observed indicator equal to the variance of the observed scale value multiplied by one minus the scale reliability. The values of these restrictions are shown in Table 5-7.

This essentially constrains the measurement aspect of the structural model to what is known about the data thus far. It also reduces the number of parameters to be estimated, which in turn, decreases the likelihood of nonconvergence in the estimation process or improper

solutions. Kenny (1979) notes that although a model is identified in principle--in that it meets all the rules for identification--it can still be empirically underidentified if correlations between constructs are low or effects are too small.

Constraining the measurement model in this manner will be subsequently useful when goodness-of-fit indices (GFI) are used to evaluate the model. One little-recognized disadvantage of GFIs is that they are heavily influenced by the measurement portion of the model; this is particularly true when there are only a few latent variables in the system and many indicators per construct. As a result, the GFI for a structural model may reflect very little of the goodness of fit of the causal relationships between constructs. Hence, these structural links may be misspecified and still reflect high GFIs. By constraining the measurement model throughout the structural model analysis, changes in GFIs can be unambiguously attributed to changes in specification of the structural model.

Median split analysis. Structural equation modelling techniques were initially developed for the estimation of linear systems of equations. Only recently have researchers developed techniques for the estimation of nonlinear latent variable relationships (Jaccard & Wan 1995; cf., Kenny & Judd 1984). Given the interest in the moderating role of trust on all of the antecedent variables in this study, application of the Jaccard and Wan (1995) technique would be extremely

complicated and greatly increase the number of parameters to be estimated.⁷ This could be problematic given the sample size and complexity of the longitudinal model.

Instead, a median split on trust was used to designate "high" and "low" levels and the cross sectional structural model (Figure 3-5) was estimated separately in both groups. This was done for buyers and suppliers separately, resulting in four groups in which the structural model is estimated-- high trust buyers, low trust buyers, high trust suppliers, and low trust suppliers.

Although a four-group analysis adds more effort in estimation, one should be cautious about the level of complexity that is added to inference. One can easily lose sight of the forest in light of the trees and become lost in the muddle of estimates, particularly when the patterns are not clearly consistent or readily interpretable. This is to say that although one may encounter an anomalous parameter estimate in this analysis, it may be more useful to focus on general results that occur consistently across several groups. Patterns of significance that are replicated four times should bolster confidence in conclusions about the data. In light of this, conclusions made here will focus on

⁷ Their approach would involve estimation of four additional latent variables representing the interaction of trust with each antecedent, each involving four cross-product indicators, and their effects on strategic advantage development.

general results and contributions, and not try to explain a cause for every single anomalous parameter estimate that may be observed.

Structural estimation. Estimation was conducted in SAS (1989), release 6.08, because it appeared to be more robust with respect to GLS estimation than LISREL.⁸ The cross sectional structural model parameter estimates for the four group analysis are displayed in Table 5-8. The estimates are generally positive and significant, however the effects of demand munificence and dynamism on the development of strategic advantage (β_{53} , β_{54}) are consistently nonsignificant across all four groups. It appears that environmental variables have little effect on the dyad's willingness to develop strategic advantages together. Although this seems counterintuitive at first glance--one would think that surely the environment has an effect on a firm's decision-making--it is important to bear in mind that the environment measured here is not the industry environment that surrounds the entire firm, but the environment immediately surrounding the channel dyad, typically an SBU level environment. It could be that the local environment has less effect on the dyad than the industry environment, although this possibility is beyond the scope of the present study. Given their null effects, the environmental variables

⁸ Jöreskog and Sörbom acknowledge this problem and are currently working on a remedy: version 9, which will be available for sale in the next year or two.

were eliminated from the structural model, since they add little in explaining the central phenomenon, the development of strategic advantages.

The reduction in constructs also reduces the model's complexity, making it more parsimonious and reducing the likelihood that the variables would adversely affect other parameter estimates in the system.⁹ As evidenced by Table 5-9, the pattern of significance among the remaining estimates is retained in the absence of the environmental variables. Table 5-10 provides the chi-square and fit summaries for the models in Tables 5-8 and 5-9. The chi-square difference statistics indicate clearly significant gains in fit with the reduced structural model. The CFIs also indicate that the reproduced covariance matrix of the reduced structural model more closely approximates the sample covariance matrix. Although the CFIs do not always reach acceptable levels, this is likely to be due to the fact that a composite model is used. When a multiple indicator model is estimated, the fits are significantly improved. However, in order to maintain comparability and retain a sense of incremental model-building throughout the structural analysis, the estimation is restricted to the composite models.

⁹ Although exclusion of these variables does eliminate the possibility of testing hypotheses concerning relationships between the consequences at time one and antecedents at time two, the focus of this study is in explaining the development of strategic advantages. These intermediate relationships between the consequences and perceptions of the environment might best be examined in a separate study.

A second index, the parsimonious normed fit index (PNFI) (James et al. 1982) is displayed in addition to the CFI in Table 5-10. It is important to realize that good fit in a model can come two ways: by correctly constraining parameters according to a prior hypothesis, or by estimating many parameters. Fit indexes will increase simply by estimating more parameters, regardless of whether the freed parameter is theoretically justified. The PNFI is useful in avoiding inferences based on these artifactual improvements in fit. It is essentially a normed fit index penalized for the loss of degrees of freedom from estimating more parameters. This penalty reflects an upper bound to the proportion of the independent elements in the data relevant to the assessment of goodness-of-fit. Essentially, the PNFI combines two logically interdependent aspects of the model--the goodness of fit with the parsimony of a model--and provides a more realistic assessment of how parsimonious the model is in its use of the data in achieving that goodness of fit. As such, given two models with an equally high CFI in connection with the same data, the one to be preferred is the one with the higher PNFI. Returning to the results in Table 5-10, the PNFI's indicate that even when less parameters are estimated, the structural models without environmental variables provide a better way to account for the data than the models in Table 5-8. Hence, from this point on, all discussion about the structural model will refer to the model in Table 5-9, which no longer includes environmental effects.

Saturated estimation. Before moving on to estimation of the longitudinal model, the mediating role of the central construct, development of strategic advantages, should be tested to alleviate the likelihood of misspecification in the model at the cross sectional level. Although most models contain misspecification, it is not sufficient to criticize a model just because of a specification error. A hypothesized specification error must be examined carefully to see exactly how it affects the model (Kenny 1979).

At this point, the mediating role of the development of strategic advantage construct is the hypothesized specification error to be examined. One way to assess this is to run a saturated model, in which additional, alternative links are estimated and evaluate whether the alternative model does a better job of accounting for the data. If goal compatibility is not mediated by the development of strategic advantages, a model in which the links between goal compatibility and strategic advantages (β_{41}), joint profits (β_{51}), and idiosyncratic assets (β_{61}) should provide a better account of the data. Similar logic holds for complementary competencies ($\beta_{42}-\beta_{62}$).

Table 5-11 displays the model summaries for both constructs in the saturated models for all four groups. The chi-square difference test is significant in all comparisons between the structural model and saturated models. Although the CFIs generally increase, the PNFIs indicate that the improvement is artifactual, caused by the freeing of more

parameters. For the most part, the PNFIs are significantly reduced by diminishing the role of the mediating variable in the system.

In summary, the structural model appears to be supported. Support is also found for the mediating role of the development of strategic advantages in the system. The remainder of this chapter will focus on estimation of the longitudinal model.

Longitudinal Results

The parameter estimates for the longitudinal structural model depicted in Figure 5-3 are presented in Table 5-12. Since the parameter coefficients and their standard errors are asymptotic estimates, Z scores (types denoted by a, b) between the groups are used to test significance differences in parameter estimates. Since the respondents are the same in both time periods, the constructs are likely to be correlated (e.g., goal compatibility at time one and goal compatibility at time two). These correlations were also estimated.

Since the environmental variables were omitted from the model, hypotheses 3-5, 11-13, and parts of 14 and 15 cannot be tested. The conclusion from this study concerning their role is that they are not important predictors of whether buyers and suppliers will develop strategic advantages together. All estimates reported from hereon are completely standardized.

Test of h1. Contrary to expectations, a reverse interaction of the moderating effect of trust on goal compatibility was observed for buyers and suppliers. Goal compatibility under low trust for buyers ($\beta_{31}=.12^{***}$) was significantly higher ($z=2.4^{***}$) than under high trust ($\beta_{31}=-.03$). The pattern of results for suppliers is similar. Goal compatibility under low trust ($\beta_{31}=.51^{***}$) is significantly greater ($z=3.6^{***}$) than under high trust ($\beta_{31}=.28^{***}$).

Test of h2. The hypothesized interaction for complementary competencies was observed only for buyers. Under high trust, complementary competencies ($\beta_{32}=.72^{***}$) had a greater effect ($z=3.7^{***}$) on the development of strategic advantages than under low trust ($\beta_{32}=.57^{***}$). For suppliers, complementary competencies under high trust ($\beta_{32}=.40^{***}$) did not differ ($z=-.26$) from low trust ($\beta_{32}=.38^{***}$).

Test of h6. Hypothesis six was confirmed for buyers and suppliers. For buyers, the development of strategic advantages was a significant predictor of the attainment of strategic advantages under both high ($\beta_{43}=.70^{***}$) and low trust ($\beta_{43}=.39^{***}$). For suppliers, developing strategic advantages was likely to lead to the attainment of strategic advantages under both high ($\beta_{43}=.47^{***}$) and low ($\beta_{43}=.52^{***}$) trust.

Test of h7. For the most part, hypothesis seven was also confirmed for buyers and suppliers. Developing strategic advantages under high ($\beta_{53}=.54^{***}$) or low ($\beta_{53}=.41^{***}$) trust led to higher joint profits for buyers.

For suppliers, developing strategic advantages at time one led to higher joint profits under both high ($\beta_{53}=.38^{***}$) and low ($\beta_{53}=.36^{***}$) trust.

Test of h8. Hypothesis eight was confirmed for buyers and suppliers regardless of trust. For buyers, developing strategic advantages leads to idiosyncratic assets under both high ($\beta_{63}=.73^{***}$) and low ($\beta_{63}=.76^{***}$) trust. For suppliers at time one, developing strategic advantages also leads to idiosyncratic assets under high ($\beta_{24}=.76^{***}$) and low ($\beta_{63}=.49^{***}$) trust.

Test of h9. Gaining strategic advantages in time one led to increased goal compatibility for buyers under high ($\beta_{74}=.17^{***}$) and low ($\beta_{74}=.18^{***}$) trust. The results for the suppliers were mixed; strategic advantages was not associated with goal compatibility under high trust ($\beta_{74}=.004$), and was negatively associated with goal compatibility under low trust ($\beta_{74}=-.18^{***}$).

Joint profits led to goal compatibility for buyers under high trust ($\beta_{75}=.28^{***}$), but not under low trust ($\beta_{75}=.01$). The pattern of results was identical for suppliers. Under high trust ($\beta_{75}=.25^{***}$), joint profits was a significant predictor of goal compatibility, but not significant under low trust ($\beta_{75}=-.02$).

Test of h10. Hypothesis ten was confirmed in three of four groups. For buyers, the presence of idiosyncratic assets led to decreases in complementary competencies under high ($\beta_{86}=-.44^{***}$) and low ($\beta_{86}=-.38^{***}$) trust. This was

also true for suppliers under high trust ($\beta_{86}=-.16^{***}$).

However, idiosyncratic assets were positively associated with complementary competencies for suppliers under low trust ($\beta_{86}=.19^{***}$).

Test of h14. The reverse interaction observed at time one for buyers and suppliers disappeared at time two. Goal compatibility for buyers played an equally important ($z=-.36$) role under high ($\beta_{97}=.12^{***}$) and low trust ($\beta_{97}=.12^{***}$). For suppliers, goal compatibility under high trust ($\beta_{97}=.46^{***}$) had an equally important ($z=-.29$) effect as under low trust ($\beta_{97}=.46^{***}$).

The complementary competencies interaction for buyers at time one was reversed at time two. Complementary competencies under low trust ($\beta_{98}=.83^{***}$) had a greater effect ($z=3.3^{***}$) than under high trust ($\beta_{98}=.64^{***}$). For suppliers, complementary competencies under high trust ($\beta_{98}=.31^{***}$) did not significantly differ ($z=-.30$) from low trust ($\beta_{98}=.34^{***}$).

Test of h15. Hypothesis 15 was confirmed for buyers and suppliers. For buyers, the development of strategic advantages was a significant predictor of the attainment of strategic advantages regardless of the level of trust ($\beta_{10,9}=.51^{***}$ for both high and low trust). For suppliers, the pattern of results were also positive and very significant ($\beta_{10,9}=.36^{***}$ under high trust and $\beta_{10,9}=.43^{***}$ under low trust).

For buyers, developing strategic advantages at time two led to higher joint profits ($\beta_{11,8}=.56^{***}$ under high trust, and $\beta_{11,8}=.35^{***}$ under low trust). The pattern of results also held for suppliers under high trust ($\beta_{11,9}=.30^{***}$), although the effect was marginal under low trust ($\beta_{11,9}=.13^*$).

The development of strategic advantages resulted in idiosyncratic assets for buyers under high ($\beta_{21,9}=.69^{***}$) and low ($\beta_{12,9}=.80^{***}$) trust. The same is true for suppliers. For them, developing strategic advantages leads to idiosyncratic assets regardless of whether trust is high ($\beta_{12,9}=.39^{***}$) or low ($\beta_{12,9}=.41^{***}$).

Ancillary results. Aside from the variable relationships that were explicitly hypothesized, there were some other interesting patterns in the data. For example, some results pointed to differences in how buyers and suppliers weight the importance of various factors. The effect of goal compatibility on the development of strategic advantages for suppliers under high ($\beta_{31}=.28^{***}$) and low ($\beta_{31}=.51^{***}$) trust is significantly higher ($z=3.8^{***}$, $z=6.5^{***}$, respectively) than for buyers under high ($\beta_{31}=-.03$) and low ($\beta_{31}=.12^{***}$) trust. This pattern persists over time. The effect of goal compatibility for suppliers under high ($\beta_{97}=.46^{***}$) and low ($\beta_{97}=.46^{***}$) trust was significantly higher ($z=5.9^{***}$, $z=4.8^{***}$, respectively) than for buyers under high ($\beta_{97}=.12^{***}$) and low ($\beta_{97}=.12^{***}$) trust.

The converse is true for complementary competencies. At time one, complementary competencies for buyers under high ($\beta_{32}=.72^{***}$) and low ($\beta_{32}=.57^{***}$) trust was significantly greater ($z=5.6^{***}$, $z=2.3^{***}$, respectively) than for suppliers under high ($\beta_{32}=.40^{***}$) and low ($\beta_{32}=.38^{***}$) trust. This pattern of results remained constant in time two. The effects for buyers under high ($\beta_{98}=.64^{***}$) and low ($\beta_{98}=.83^{***}$) trust were significantly greater ($z=6.4^{***}$, $z=8.6^{***}$, respectively) than the effects for suppliers under high ($\beta_{98}=.31^{***}$) and low ($\beta_{98}=.34^{***}$) trust.

Between time one and two, the effect of strategic advantages on goal compatibility for buyers under high ($\beta_{74}=.17^{***}$) and low ($\beta_{74}=.18^{***}$) trust was significantly higher ($z=1.9^{**}$, $z=4.3^{***}$ respectively) than for suppliers under high ($\beta_{74}=.004$) and low ($\beta_{74}=-.18^{***}$) trust.

Since a median split analysis was used, interactions effects between developing strategic advantages and trust on the relationship outcomes were also observable. At time one, the effect of strategic advantage development on idiosyncratic assets was greater ($z=3.1^{***}$) for buyers when trust was low ($\beta_{63}=.76^{***}$) than when trust was high ($\beta_{63}=.73^{***}$). This was also true for suppliers. Development of strategic advantages was more strongly associated ($z=2.2^{***}$) with idiosyncratic assets when trust was low ($\beta_{63}=.49^{***}$) than when trust was high ($\beta_{63}=.24^{***}$).

At time two, the effect of strategic advantage development on joint profits for buyers under high trust

($\beta_{11,9}=.56^{***}$) was significantly greater ($z=4.5^{***}$) than under low ($\beta_{11,9}=.35^{***}$) trust. For suppliers, the effect under high trust ($\beta_{11,9}=.30^{***}$) was also significantly higher ($z=1.8^*$) than under low trust ($\beta_{11,9}=.13^*$).

Trust also appears to interact with the effect of joint profits on goal compatibility between time one and two. For buyers, this effect under high trust ($\beta_{75}=.28^{***}$) was greater ($z=2.7^{***}$) than under low trust ($\beta_{75}=.01$). Similarly, the effect for suppliers under high trust ($\beta_{75}=.25^{***}$) was greater ($z=2.6^{***}$) than under low trust ($\beta_{75}=-.02$).

The effect of time. Parameter estimates can also be compared across time within each group to give insight into the role of the predictor over time. This was done by comparing the chi-square for a model in which the parameter estimates are constrained to be equal to the chi-square for the structural model in which the parameters of interest are freely estimated. If the chi-square difference was not significant, then the parameters were essentially equal.

For example, the effect of goal compatibility on the development of strategic advantages for suppliers under low trust at time one ($\beta_{31}=.51^{***}$) is marginally more important ($\chi^2_{\text{diff}}=3^*$) than at time two ($\beta_{97}=.46^{***}$). However, under high trust, the effect of goal compatibility on the development of strategic advantages at time two ($\beta_{97}=.46^{***}$) is significantly greater ($\chi^2_{\text{diff}}=9^{***}$) than at time one ($\beta_{31}=.28^{***}$). The pattern for buyers under high trust was

similar to suppliers; goal compatibility was more strongly associated ($\chi^2_{\text{diff}}=5^{***}$) with strategic advantages at time two ($\beta_{97}=.12^{***}$) than at time one ($\beta_{31}=-.03$).

For buyers under high trust, the effect of complementary competencies on the development of strategic advantages at time one ($\beta_{32}=.72^{***}$) had a marginally greater effect ($\chi^2_{\text{diff}}=3^*$) than at time two ($\beta_{98}=.64^{***}$). The converse is true when trust is low. At time two, the effect of complementary competencies on the development of strategic advantages ($\beta_{98}=.83^{***}$) is significantly greater ($\chi^2_{\text{diff}}=117^{***}$) than at time one ($\beta_{32}=.57^{***}$).

The effect of developing strategic advantages on the attainment of strategic advantages followed a similar pattern for buyers. At time one, the effect ($\beta_{43}=.70^{***}$) was significantly greater ($\chi^2_{\text{diff}}=17^{***}$) than at time two ($\beta_{10,9}=.51^{***}$) under high trust. Under low trust, the effect ($\beta_{10,9}=.51^{***}$) was marginally greater ($\chi^2_{\text{diff}}=3^*$) at time two than at time one ($\beta_{43}=.39^{***}$).

Saturated model results. As before, the next most likely unconstrained model--the saturated model--was estimated and compared to the structural model in order to assess the degree to which the latter provides the best explanation of the data. As before, the mediating role of the development of strategic advantages at time one and time two was assessed, but this time in the context of the entire structural model. Coefficients linking goal compatibility at time one to strategic advantages (β_{41}), joint profits (β_{51}),

and idiosyncratic assets (β_{61}) at time one were estimated and the resulting chi-square was compared to the structural model. Similar procedures were conducted for goal compatibility at time two ($\beta_{10,7}-\beta_{12,7}$) and complementary competencies at time one ($\beta_{42}-\beta_{62}$) and two ($\beta_{10,8}-\beta_{12,8}$). The model summary results are displayed in Table 5-13. The chi-square differences are all significant, excepting one, and the CFIs are improved a point or two. However, the PNFIs virtually always decrease with the saturated models, indicating that the improvement in fits are primarily due to the estimation of additional parameters, and not because the parameters represent a superior specification of the structural model.

The mediating role of the antecedents at time two is also assessed. To test whether goal compatibility mediates strategic advantages gained, an additional effect (β_{94}) between strategic advantages gained and the development of strategic advantages at time two is estimated. Similar procedures were conducted for joint profits (β_{95}) and idiosyncratic assets (β_{96}) at time one. The results are also displayed in Table 5-13. Unlike before, the chi-square differences are not always significant, since only one additional parameter is being estimated. The CFIs for buyers vary one or two points, and the supplier CFIs remain unchanged. However, the PNFIs for the saturated models

decrease in three out of the four groups (buyers low trust, suppliers high and low trust) and remains the same in the fourth group (buyers high trust).

Collectively, the saturated model results support the causal ordering depicted in Figure 5-3. Analysis of the structural models suggests that the development of strategic advantages is a valid mediator between the antecedents and consequences at time one, and the antecedents and consequences at time two. Additionally, there is evidence for the mediating role of the antecedents at time two between the consequences of time one and the development of strategic advantage at time two. In both cases across all four groups, the hypothesized structural model provides a more reasonable and parsimonious explanation of the data than the saturated models do.

Summary

The purpose of this chapter was to describe the analysis strategy used to assess and test the structural model of interest. Estimation of a dyadic measurement model incorporating the independent responses of buyers and suppliers prohibited subsequent estimation of a dyadic structural model. Other aspects of measurement were less problematic and there was no problem in showing adequate construct validity at the cross sectional level and temporal invariance of the measures. A median split analysis was conducted, with the structural model being estimated for

buyers and suppliers separately under high and low levels of trust. This process began at the cross sectional level and then was conducted on the longitudinal model. Saturated models failed to provide better fits to the data, bolstering the conclusion that the structural model provides a fitting explanation of the data.

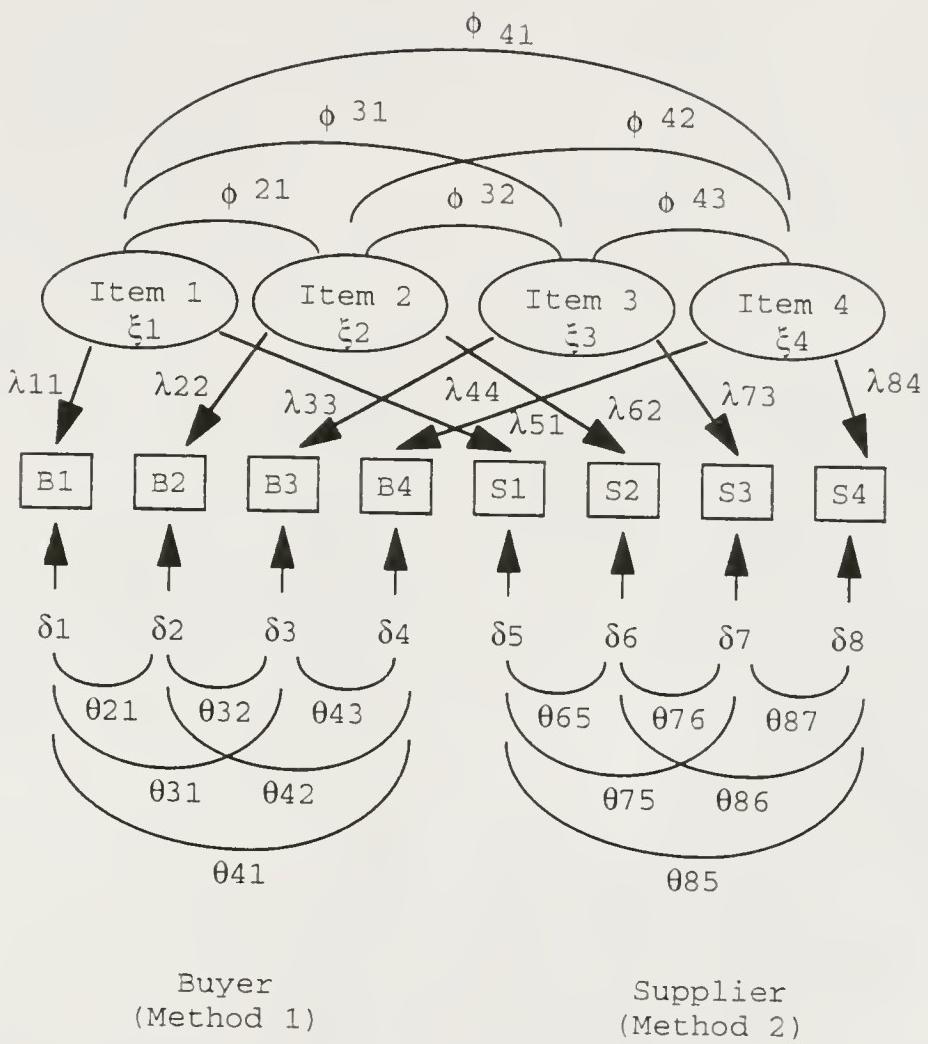
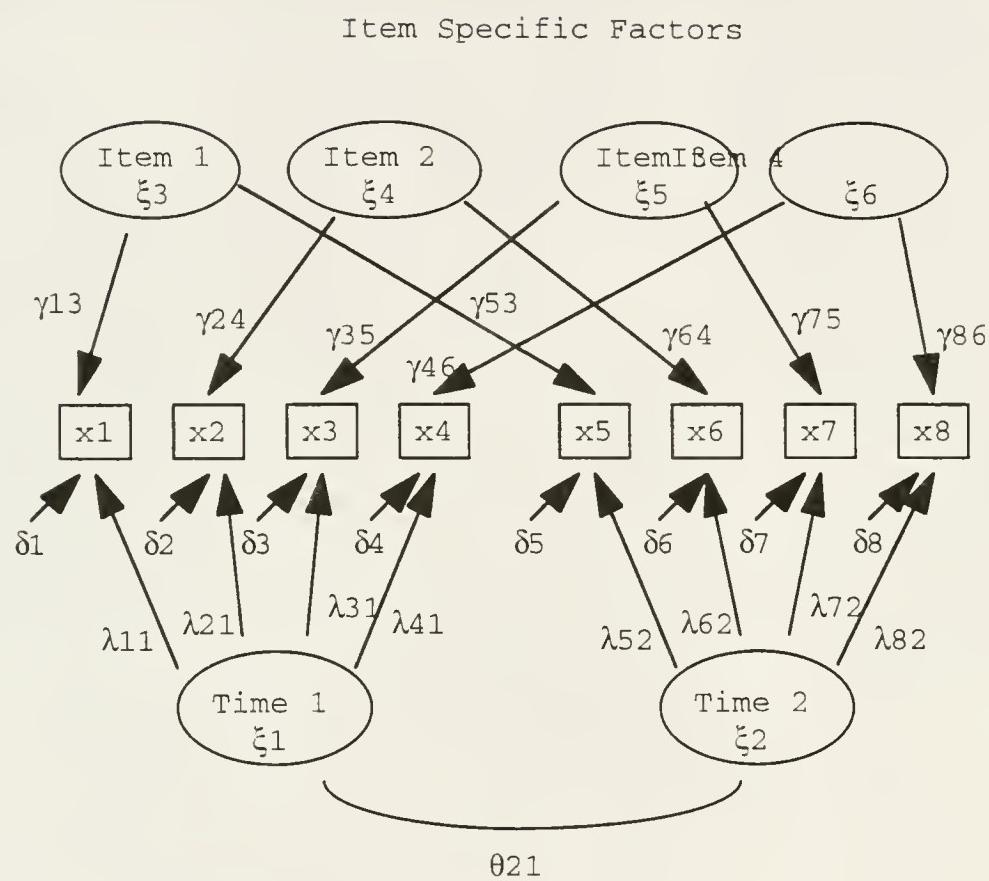


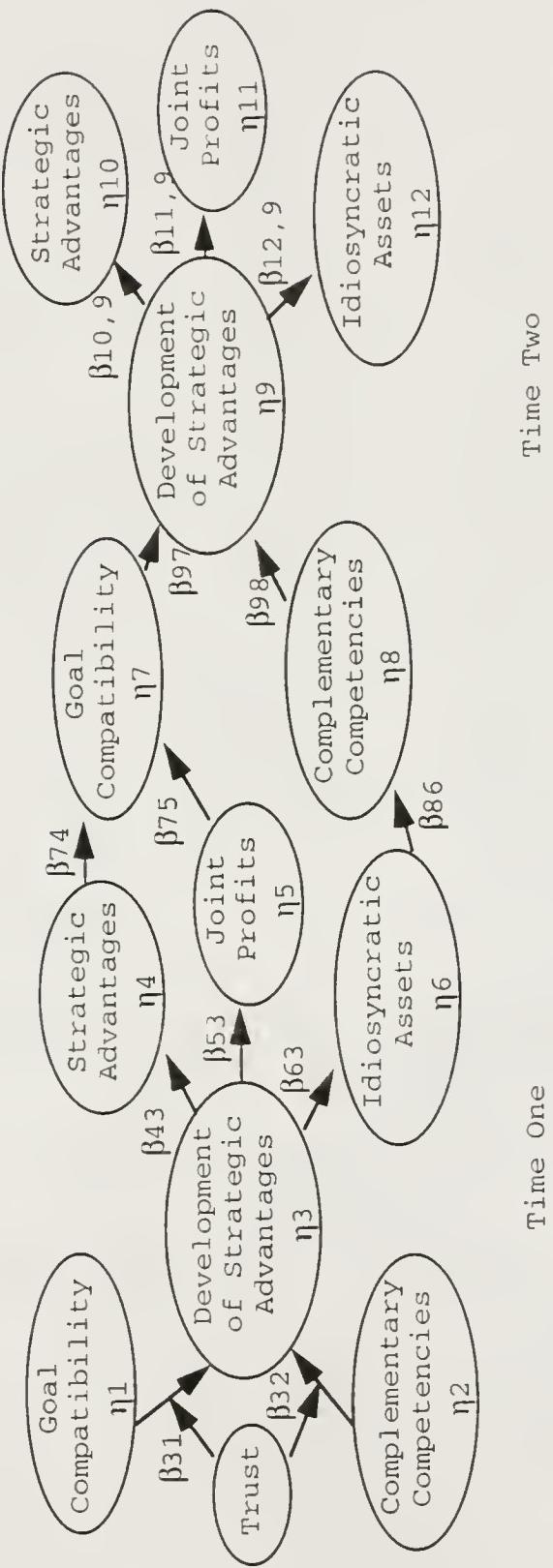
Figure 5-1: The Correlated Uniqueness Model

x_5-x_8 are identically worded to x_1-x_4 , respectively.



Factors at Time One and Two

Figure 5-2: The Longitudinal Measurement Model



All error terms and correlations are not depicted for the sake of clarity.

Figure 5-3: Revised Longitudinal Structural Model

Table 5-1
Trust Correlated Uniqueness Model Estimates

All estimates are completely standardized.

Factor Loadings (λ):

<u>Observed Indicator</u>	<u>Item</u>	<u>Trait</u>	<u>Factor</u>		
	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>
Supp1	.42	--	--	--	--
Supp2	--	.30	--	--	--
Supp3	--	--	.40	--	--
Supp4	--	--	--	.41	--
Supp5	--	--	--	--	.41
Buyr1	.77	--	--	--	--
Buyr2	--	.93	--	--	--
Buyr3	--	--	.87	--	--
Buyr4	--	--	--	.84	--
Buyr5	--	--	--	--	.82

Factor Variances and Correlations (ϕ):

<u>Factor</u>	<u>Item</u>	<u>Factor</u>			
	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>
Item 1	1.0				
Item 2	.92	1.0			
Item 3	1.0	.94	1.0		
Item 4	.97	.82	.99	1.0	
Item 5	.91	.75	.96	.94	1.0

Table 5-1 (continued)

Unique Variances and Correlations (θ):

	<u>S1</u>	<u>S2</u>	<u>S3</u>	<u>S4</u>	<u>S5</u>	<u>B1</u>	<u>B2</u>	<u>B3</u>	<u>B4</u>	<u>B5</u>
Supp1	.82									
Supp2	.56	.91								
Supp3	.49	.53	.84							
Supp4	.33	.38	.54	.83						
Supp5	.50	.53	.44	.40	.83					
Buyr1	--	--	--	--	--	.41				
Buyr2	--	--	--	--	--	.11	.13			
Buyr3	--	--	--	--	--	.07	.03	.25		
Buyr4	--	--	--	--	--	.09	.07	.09	.30	
Buyr5	--	--	--	--	--	.07	.09	.06	.14	.33

Table 5-2

Assessment of Perceptual Agreement Among Informants

Standard deviations are listed in parentheses.

.05, *.01

<u>Construct</u>	Buyer <u>Mean</u>	Supplier <u>Mean</u>	Difference <u>t-value</u>	Response <u>Correlation</u>
Goal Compatibility	5.1 (1.1)	5.4 (1.2)	2.6***	.14**
Complementary Competencies	5.2 (.92)	5.5 (.98)	3.3***	.21***
Demand Munificence	4.7 (1.0)	5.1 (1.2)	3.3***	-.02
Dynamism	4.6 (1.2)	4.7 (1.4)	1.0	.08
Development of Strategic Advantages	5.0 (1.0)	5.3 (1.1)	3.2***	.13**
Strategic Advantages	4.9 (1.1)	5.4 (1.1)	5.4***	.20***
Joint Profits	4.3 (1.1)	4.4 (1.2)	1.1	.05
Idiosyncratic Assets	4.7 (1.2)	5.8 (.99)	11.1***	.14**

Table 5-3

Scale Items, Factor Loadings, Standard Errors, and
Reliabilities at Time Two

All estimates are based on the correlation matrix as input.

T-values are listed directly below each parameter estimate.

BUYERS N=167

	λ	$\theta\delta$
<u>GOAL COMPATIBILITY</u> (Reliability = .89)		
They share the same goals in the relationship.	.81	.34
	12.4	7.3
They have compatible goals.	.90	.19
	14.5	5.1
They support each other's objectives.	.85	.28
	13.2	6.8
<u>COMPLEMENTARY COMPETENCIES</u> (Reliability = .81)		
They have complementary strengths that are useful to their relationship.	.86	.27
	13.4	6.6
They contribute different resources to the relationship that help them achieve mutual goals.	.81	.34
	12.4	7.5
They have separate abilities that, when combined together, enable them to achieve goals beyond their individual reach.	.63	.60
	8.8	8.6
<u>TRUST</u> (Reliability = .89)		
Our promises to each other are reliable.	.90	.18
	15.0	7.0
We are very honest in dealing with each other.	.93	.13
	17.4	5.9
We trust each other.	.92	.16
	15.4	6.6
We would go out of our way to help each other out.	.77	.41
	11.6	8.4
We consider each other's interests when problems arise.	.82	.32
	12.9	8.1

Table 5-3 (continued)

<u>DEMAND MUNIFICENCE</u> (Reliability = .57)	<u>λ</u>	<u>$\theta\delta$</u>
The demand for the supplier's product(s) is high.	.77	.41
	6.9	2.8
The demand for the buyer's product(s) is high.	.48	.77
	5.2	7.7
<u>DYNAMISM</u> (Reliability = .77)	<u>λ</u>	<u>$\theta\delta$</u>
Marketing practices in our industry are constantly changing.	.82	.33
	7.5	2.2
The product mixes in our industry changes frequently.	.76	.43
	7.2	3.2
DEVELOPMENT OF		
<u>STRATEGIC ADVANTAGES</u> (Reliability = .86)	<u>λ</u>	<u>$\theta\delta$</u>
They work on joint projects tailored to their needs.	.76	.42
	11.3	8.1
They work together to exploit unique opportunities.	.78	.39
	11.8	8.0
Both companies are able to come up with innovative solutions to problems.	.80	.36
	12.1	7.8
Both companies are always looking for synergistic ways to do business together.	.79	.38
	12.0	7.9
<u>STRATEGIC ADVANTAGES</u> (Reliability = .75)	<u>λ</u>	<u>$\theta\delta$</u>
They have gained strategic advantages over their competitors.	.78	.38
	11.6	7.2
The relationship has not resulted in strategic advantages for them. (R)	.51	.74
	6.7	8.8
They have gained benefits that enable them to compete more effectively in the marketplace.	.71	.49
	10.1	8.0
The relationship has not resulted in strategically important outcomes. (R)	.61	.62
	8.4	8.5

Table 5-3 (continued)

	<u>λ</u>	<u>$\theta\delta$</u>
<u>JOINT PROFITS</u> (Reliability = .86)		
They have achieved a high level of joint profits between them.	.89 14.1	.21 5.4
They have generated a lot of profits together.	.90 14.3	.20 5.0
They have increased joint profits shared between them.	.67 9.5	.55 8.4
<u>IDIOSYNCRATIC ASSETS</u> (Reliability = .76)		
If this relationship were to end, they would be wasting a lot of knowledge that's tailored to their relationship.	.65 8.8	.58 8.2
If either company were to switch to a competitive buyer or vendor, they would lose a lot of the investments made in the present relationship.	.75 10.8	.43 7.3
They have invested a great deal in building up their joint business.	.74 10.1	.45 7.4
<u>SUPPLIERS</u> N=154		
<u>GOAL COMPATIBILITY</u> (Reliability = .89)		
They share the same goals in the relationship.	.87 13.3	.25 6.7
They have compatible goals.	.83 12.5	.31 7.3
They support each other's objectives.	.87 13.3	.24 6.7
<u>COMPLEMENTARY COMPETENCIES</u> (Reliability = .75)		
They have complementary strengths that are useful to their relationship.	.71 9.9	.49 8.0
They contribute different resources to the relationship that help them achieve mutual goals.	.83 12.2	.30 6.3
They have separate abilities that, when combined together, enable them to achieve goals beyond their individual reach.	.56 7.4	.68 8.5

Table 5-3 (continued)

<u>TRUST</u> (Reliability = .93)	λ	$\theta\delta$
Our promises to each other are reliable.	.74	.46
	10.4	8.1
We are very honest in dealing with each other.	.82	.32
	12.3	7.5
We trust each other.	.92	.16
	14.6	5.7
We would go out of our way to help each other out.	.88	.22
	13.8	6.7
We consider each other's interests when problems arise.	.88	.22
	13.7	6.7
<u>DEMAND MUNIFICENCE</u> (Reliability = .65)	λ	$\theta\delta$
The demand for the supplier's product(s) is high.	.68	.54
	7.0	4.9
The demand for the buyer's product(s) is high.	.73	.47
	7.4	4.1
<u>DYNAMISM</u> (Reliability = .34)	λ	$\theta\delta$
Marketing practices in our industry are constantly changing.	1.0	.00
	5.7	-.01
The product mixes in our industry changes frequently.	.58	.66
	4.8	4.8
DEVELOPMENT OF		
<u>STRATEGIC ADVANTAGES</u> (Reliability = .85)	λ	$\theta\delta$
They work on joint projects tailored to their needs.	.81	.35
	11.7	7.1
They work together to exploit unique opportunities.	.80	.36
	11.6	7.2
Both companies are able to come up with innovative solutions to problems.	.70	.52
	9.5	7.9
Both companies are always looking for synergistic ways to do business together.	.75	.44
	10.5	7.6

Table 5-3 (continued)

<u>STRATEGIC ADVANTAGES</u> (Reliability = .78)	<u>λ</u>	<u>$\theta\delta$</u>
They have gained strategic advantages over their competitors.	.83 12.0	.32 6.2
The relationship has not resulted in strategic advantages for them. (R)	.52 6.5	.73 8.3
They have gained benefits that enable them to compete more effectively in the marketplace.	.82 11.7	.33 6.4
The relationship has not resulted in strategically important outcomes. (R)	.56 7.1	.69 8.3
<u>JOINT PROFITS</u> (Reliability = .83)	<u>λ</u>	<u>$\theta\delta$</u>
They have achieved a high level of joint profits between them.	.91 13.4	.17 3.1
They have generated a lot of profits together.	.78 10.9	.39 6.5
They have increased joint profits shared between them.	.67 8.9	.55 7.7
<u>IDIOSYNCRATIC ASSETS</u> (Reliability = .75)	<u>λ</u>	<u>$\theta\delta$</u>
If this relationship were to end, they would be wasting a lot of knowledge that's tailored to their relationship.	.68 8.9	.53 7.3
If either company were to switch to a competitive buyer or vendor, they would lose a lot of the investments made in the present relationship.	.73 9.7	.47 6.8
They have invested a great deal in building up their joint business.	.70 9.3	.50 7.1

Table 5-4

Measurement Models and Correlation Matrices, Means,
and Standard Deviations at Time Two

BUYERS MEASUREMENT MODEL $\chi^2(df)$: 626(224)

BENTLER'S CFI .88

CORRELATION MATRIX (completely standardized)

		Mean	Std Dev	1	2	3	4	5	6	7	8
1 GOAL	5.0	1.1		1							
2 CCOMP	5.1	.86		.83	1						
3 MUNIF	5.0	.98		.24	.43	1					
4 DYNAM	4.6	1.3		.14 ^b	.22	.39	1				
5 SADEV	5.0	1.0		.77	.95 ^a	.35	.27	1			
6 SADVS	4.8	.93		.69	.86 ^a	.54	.21	.87 ^a	1		
7 JPROF	4.4	1.1		.59	.75	.38	.15 ^b	.73	.84 ^a	1	
8 ASSET	4.7	1.2		.54	.80	.55	.27	.89 ^a	.91 ^a	.73	1

All estimates are completely standardized.

All correlations are significant at alpha=.05, with the exception of those marked with a "b."

^a Failed to meet Fornell and Larcker (1981) test of discriminant validity.

GOAL = goal compatibility

CCOMP = complementary competencies

MUNIF = demand munificence

DYNAM = dynamism

SADEV = development of strategic advantages

SADVS = strategic advantages

JPROF = joint profits

ASSET = idiosyncratic assets

Table 5-4 (continued)

SUPPLIERS MEASUREMENT MODEL $\chi^2(df): 389(224)$

BENTLER'S CFI .92

CORRELATION MATRIX (completely standardized)

		Mean	Std Dev	1	2	3	4	5	6	7	8
1	GOAL	5.3	1.1	1							
2	CCOMP	5.4	.89	.96 ^a	1						
3	MUNIF	5.4	1.1	.38	.45	1					
4	DYNAM	4.8	1.4	-.14 ^b	-.02 ^b	.19 ^b	1				
5	SADEV	5.2	1.1	.90 ^a	.94 ^a	.49	-.01 ^b	1			
6	SADVS	5.5	.91	.68	.84 ^a	.52	.04 ^b	.74	1		
7	JPROF	4.6	1.2	.64	.63	.29	.04 ^b	.55	.62	1	
8	ASSET	5.9	.84	.66	.77	.50	.10 ^b	.75	.87 ^a	.52	1

All estimates are completely standardized.

All correlations are significant at alpha=.05, with the exception of those marked with a "b."

^a Failed to meet Fornell and Larcker (1981) test of discriminant validity.

GOAL = goal compatibility

CCOMP = complementary competencies

TRUST = trust

MUNIF = demand munificence

DYNAM = dynamism

SADEV = development of strategic advantages

SADVS = strategic advantages

JPROF = joint profits

ASSET = idiosyncratic assets

Table 5-5

Longitudinal Measurement Model Parameter Estimates
for the Development of Strategic Advantages

All estimates are completely standardized and based on the correlation matrix as input.

Factor Loadings:

<u>Observed Indicator</u>	Time (λ)		Item (γ)			
	<u>1</u>	<u>2</u>	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>
SADEV11	.64	--	.09	--	--	--
SADEV21	.83	--	--	.20	--	--
SADEV31	.67	--	--	--	.40	--
SADEV41	.77	--	--	--	--	.24
SADEV12	--	.75	.09	--	--	--
SADEV22	--	.87	--	.19	--	--
SADEV32	--	.66	--	--	.39	--
SADEV42	--	.75	--	--	--	.25

Factor Variances and Correlations (θ):

<u>Observed Indicator</u>	Time		Item			
	<u>1</u>	<u>2</u>	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>
Time 1	1					
Time 2	.58	1				
Item 1	--	--	1			
Item 2	--	--	--	1		
Item 3	--	--	--	--	1	
Item 4	--	--	--	--	--	1

Random Errors (δ):	SADEV11	.59	SADEV12	.43
	SADEV21	.28	SADEV22	.21
	SADEV31	.38	SADEV32	.39
	SADEV41	.35	SADEV42	.38

Table 5-6

Tests of Longitudinal Measurement Model Invariance

χ^2 diff, df diff is the difference between the estimated model and the 1 factor model.

λ = trait loadings are constrained to be equal over time

λ , γ = trait and item-specific loadings are constrained to be equal over time

λ , γ , θ = trait and item-specific loadings and random errors are constrained to be equal over time

BUYERS

Goal Compatibility

	<u>χ^2</u>	<u>df</u>	<u>p-val</u>	<u>χ^2 diff</u>	<u>df diff</u>	<u>CFI</u>
1 factor	3.9	2	.14	--	--	1.0
λ =	6.0	5	.30	2.1	3	1.0
λ , γ =	9.2	8	.32	5.3	6	1.0
λ , γ , θ =	12.5	11	.33	8.5	9	1.0

Complementary Competencies

	<u>χ^2</u>	<u>df</u>	<u>p-val</u>	<u>χ^2 diff</u>	<u>df diff</u>	<u>CFI</u>
1 factor	4.5	2	.11	--	--	.99
λ =	6.3	5	.28	1.8	3	1.0
λ , γ =	7.3	8	.51	2.8	6	1.0
λ , γ , θ =	10.3	11	.50	5.8	9	1.0

Development of Strategic Advantages

	<u>χ^2</u>	<u>df</u>	<u>p-val</u>	<u>χ^2 diff</u>	<u>df diff</u>	<u>CFI</u>
1 factor	36.2	11	.00	--	--	.96
λ =	37.4	15	.00	1.3	4	.96
λ , γ =	37.5	19	.01	1.4	8	.97
λ , γ , θ =	39.5	23	.02	3.3	12	.97

Strategic Advantages

	<u>χ^2</u>	<u>df</u>	<u>p-val</u>	<u>χ^2 diff</u>	<u>df diff</u>	<u>CFI</u>
1 factor	49.8	11	.00	--	--	.90
λ =	50.9	15	.00	1.2	4	.91
λ , γ =	50.9	19	.00	1.2	8	.92
λ , γ , θ =	52.5	23	.00	2.7	12	.93

Table 5-6 (continued)

Joint Profits

	χ^2	df	p-val	χ^2	df	diff	CFI
1 factor	6.6	2	.04	--	--	--	.99
$\lambda =$	9.2	5	.10	2.5	3		.99
$\lambda =, \gamma =$	9.5	8	.30	2.9	6		1.0
$\lambda =, \gamma =, \theta =$	16.2	11	.14	9.5	9		.99

Idiosyncratic Assets

	χ^2	df	p-val	χ^2	df	diff	CFI
1 factor	6.3	2	.04	--	--	--	.99
$\lambda =$	6.8	5	.24	.54	3		.99
$\lambda =, \gamma =$	6.8	8	.56	.54	6		1.0
$\lambda =, \gamma =, \theta =$	7.1	11	.79	.84	9		1.0

SUPPLIERS

Goal Compatibility

	χ^2	df	p-val	χ^2	df	diff	CFI
1 factor	6.7	2	.04	--	--	--	.99
$\lambda =$	10.5	5	.06	3.8	3		.99
$\lambda =, \gamma =$	12.3	8	.14	5.6	6		.99
$\lambda =, \gamma =, \theta =$	19.0	11	.06	12.4	9		.98

Complementary Competencies

	χ^2	df	p-val	χ^2	df	diff	CFI
1 factor	6.0	2	.05	--	--	--	.98
$\lambda =$	8.9	5	.12	2.9	3		.99
$\lambda =, \gamma =$	8.9	8	.36	2.9	6		1.0
$\lambda =, \gamma =, \theta =$	11.3	11	.42	5.4	9		1.0

Development of Strategic Advantages

	χ^2	df	p-val	χ^2	df	diff	CFI
1 factor	15.3	11	.02	--	--	--	.99
$\lambda =$	16.6	15	.34	1.3	4		1.0
$\lambda =, \gamma =$	16.6	19	.62	1.3	8		1.0
$\lambda =, \gamma =, \theta =$	19.1	23	.70	3.8	12		1.0

Table 5-6 (continued)

Strategic Advantages

	<u>χ^2</u>	<u>df</u>	<u>p-val</u>	<u>χ^2 diff</u>	<u>df diff</u>	<u>CFI</u>
1 factor	25.9	11	.01	--	--	.96
$\lambda =$	34.8	15	.00	8.8	4	.94
$\lambda =, \gamma =$	35.4	19	.01	9.5	8	.95
$\lambda =, \gamma =, \theta =$	40.3	23	.01	14.4	12	.95

Joint Profits

	<u>χ^2</u>	<u>df</u>	<u>p-val</u>	<u>χ^2 diff</u>	<u>df diff</u>	<u>CFI</u>
1 factor	3.9	2	.14	--	--	.99
$\lambda =$	4.9	5	.43	.98	3	1.0
$\lambda =, \gamma =$	4.9	8	.77	.98	6	1.0
$\lambda =, \gamma =, \theta =$	12.5	11	.32	8.7	9	1.0

Idiosyncratic Assets

	<u>χ^2</u>	<u>df</u>	<u>p-val</u>	<u>χ^2 diff</u>	<u>df diff</u>	<u>CFI</u>
1 factor	28.2	11	.00	--	--	.94
$\lambda =$	37.6	15	.00	9.3	4	.92
$\lambda =, \gamma =$	37.6	19	.01	9.3	8	.93
$\lambda =, \gamma =, \theta =$	43.5	23	.01	15.3	12	.92

Table 5-7

Restricted Parameter Values for Factor Loadings and Errors

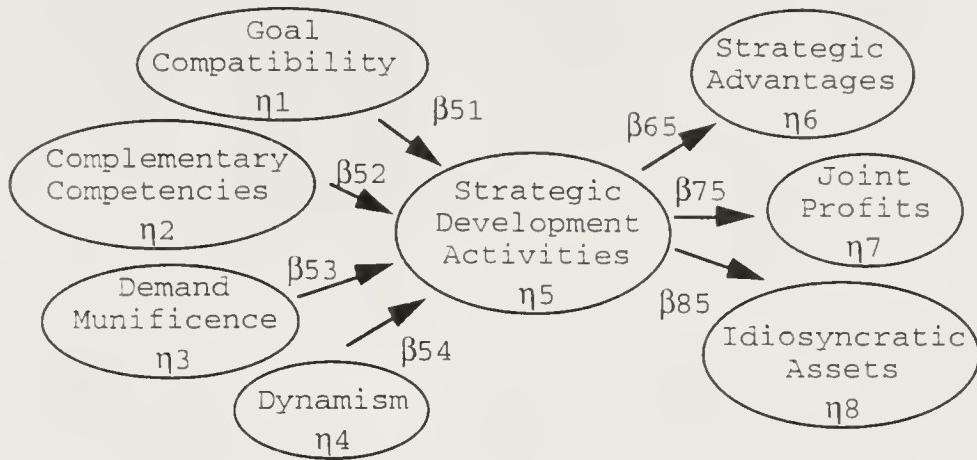
	TIME 1 <u>Lambda</u>	Theta- <u>Delta</u>	TIME 2 <u>Lambda</u>	Theta- <u>Delta</u>
<u>BUYERS</u>				
Goal Compatibility	0.93	0.15	0.94	0.13
Complementary Competencies	0.89	0.17	0.90	0.16
Demand Munificence	0.81	0.37	0.75	0.47
Dynamism	0.87	0.37	0.88	0.34
Development of Strategic Advantages	0.92	0.18	0.93	0.14
Strategic Advantages	0.89	0.23	0.87	0.22
Joint Profits	0.91	0.20	0.93	0.15
Idiosyncratic Assets	0.87	0.36	0.87	0.36
<u>SUPPLIERS</u>				
Goal Compatibility	0.89	0.32	0.94	0.17
Complementary Competencies	0.88	0.18	0.87	0.24
Demand Munificence	0.83	0.42	0.81	0.47
Dynamism	0.74	0.89	0.58	1.30
Development of Strategic Advantages	0.91	0.21	0.92	0.17
Strategic Advantages	0.88	0.26	0.88	0.18
Joint Profits	0.93	0.21	0.91	0.23
Idiosyncratic Assets	0.80	0.31	0.87	0.18

$$\lambda = (\text{reliability})^{.5}$$

$$\theta\delta = s^2(1-\text{reliability})$$

Table 5-8

Cross Sectional Structural Model Parameter Estimates



All estimates are completely standardized.

BUYERS

EFFECT	HIGH TRUST		LOW TRUST	
	TI	T2	TI	T2
β ₅₁	0.11	0.25***	0.33***	0.14***
β ₅₂	0.46***	0.50***	0.42***	0.60***
β ₅₃	-0.02	-0.07	-0.08	0.11
β ₅₄	0.06	0.09*	0.06	0.01
β ₆₅	0.32***	0.59***	0.48***	0.40***
β ₇₅	0.21***	0.55***	0.44***	0.42***
β ₈₅	0.44***	0.66***	0.26***	0.59***

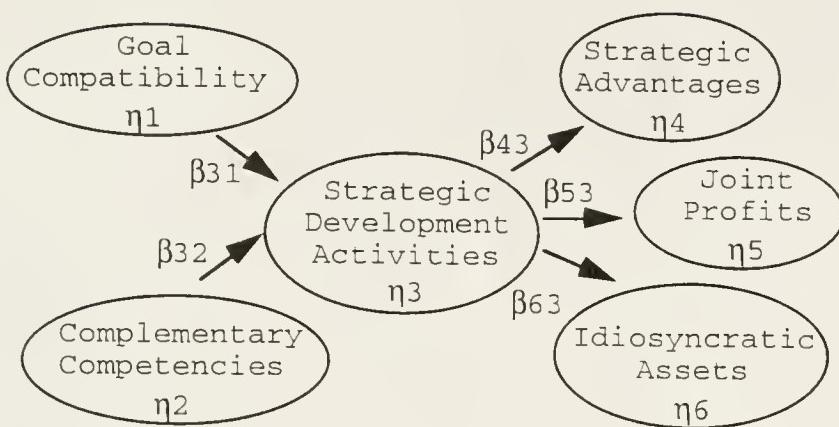
SUPPLIERS

EFFECT	HIGH TRUST		LOW TRUST	
	TI	T2	TI	T2
β ₅₁	0.32***	0.50***	0.45***	0.37***
β ₅₂	0.38***	0.13***	0.29***	0.37***
β ₅₃	0.06	0.15	0.05	0.01
β ₅₄	0.06	0.01	0.04	0.05
β ₆₅	0.33***	0.28***	0.53***	0.34***
β ₇₅	0.21***	0.38***	0.26***	0.06
β ₈₅	0.27***	0.32***	0.49***	0.35***

*.1, **.05, ***.01

Table 5-9

Cross Sectional Structural Model Parameter Estimates Without Environmental Variables



All estimates are completely standardized.

BUYERS

EFFECT	HIGH TRUST		LOW TRUST	
	T1	T2	T1	T2
β_{31}	0.11	0.23***	0.33***	0.12*
β_{32}	0.46***	0.51***	0.39***	0.63***
β_{43}	0.33***	0.48***	0.44***	0.48***
β_{53}	0.22***	0.48***	0.43***	0.42***
β_{63}	0.43***	0.62***	0.26***	0.63***

SUPPLIERS

EFFECT	HIGH TRUST		LOW TRUST	
	T1	T2	T1	T2
β_{31}	0.32***	0.50***	0.44***	0.34***
β_{32}	0.40***	0.20***	0.30***	0.41***
β_{43}	0.36***	0.31***	0.53***	0.38***
β_{53}	0.24***	0.35***	0.27***	0.05
β_{63}	0.30***	0.34***	0.51***	0.41***

*.1, **.05, ***.01

Table 5-10

Cross Sectional Structural Model Summaries

BUYERS HIGH TRUST

<u>MODEL</u>	<u>χ^2</u>	<u>df</u>	<u>CFI</u>	<u>PNFI</u>	<u>χ^2</u> <u>diff</u>	<u>df</u> <u>diff</u>
T1 Structural	173	25	0.86	0.60	-	-
T1 Structural w/no envir't	135	14	0.88	0.66	38	11
T2 Structural	660	25	0.75	0.75	-	-
T2 Structural w/no envir't	583	14	0.70	0.81	77	11

BUYERS LOW TRUST

<u>MODEL</u>	<u>χ^2</u>	<u>df</u>	<u>CFI</u>	<u>PNFI</u>	<u>χ^2</u> <u>diff</u>	<u>df</u> <u>diff</u>
T1 Structural	252	25	0.87	0.77	-	-
T1 Structural w/no envir't	175	14	0.89	0.82	77	11
T2 Structural	254	25	0.73	0.63	-	-
T2 Structural w/no envir't	182	14	0.76	0.70	72	11

SUPPLIERS HIGH TRUST

<u>MODEL</u>	<u>χ^2</u>	<u>df</u>	<u>CFI</u>	<u>PNFI</u>	<u>χ^2</u> <u>diff</u>	<u>df</u> <u>diff</u>
T1 Structural	604	25	0.52	0.46	-	-
T1 Structural w/no envir't	557	14	0.53	0.49	47	11
T2 Structural	593	25	0.57	0.50	-	-
T2 Structural w/no envir't	480	14	0.58	0.53	113	11

All χ^2 are significant.

Table 5-10 (continued)

SUPPLIERS LOW TRUST

<u>MODEL</u>	<u>χ^2</u>	<u>df</u>	<u>CFI</u>	<u>PNFI</u>	<u>χ^2</u> <u>diff</u>	<u>df</u> <u>diff</u>
T1 Structural	124	25	0.82	0.70	-	-
T1 Structural w/no envir't	87	14	0.84	0.77	37	11
T2 Structural	482	25	0.57	0.50	-	-
T2 Structural w/no envir't	417	14	0.57	0.53	65	11

All χ^2 are significant.

Table 5-11

Cross Sectional Saturated Model Summaries

BUYERS HIGH TRUST

<u>MODEL</u>	<u>χ^2</u>	<u>df</u>	<u>CFI</u>	<u>PNFI</u>	<u>χ^2</u> <u>diff</u>	<u>df</u> <u>diff</u>
T1 Structural	135	14	0.88	0.66	-	-
$\beta_{41}, \beta_{51}, \beta_{61}$	106	11	0.91	0.66	29	3
$\beta_{42}, \beta_{52}, \beta_{62}$	119	11	0.90	0.65	16	3
T2 Structural	583	14	0.70	0.81	-	-
$\beta_{41}, \beta_{51}, \beta_{61}$	558	11	0.71	0.52	25	3
$\beta_{42}, \beta_{52}, \beta_{62}$	543	11	0.72	0.52	40	3

BUYERS LOW TRUST

<u>MODEL</u>	<u>χ^2</u>	<u>df</u>	<u>CFI</u>	<u>PNFI</u>	<u>χ^2</u> <u>diff</u>	<u>df</u> <u>diff</u>
T1 Structural	175	14	0.89	0.82	-	-
$\beta_{41}, \beta_{51}, \beta_{61}$	137	11	0.91	0.66	38	3
$\beta_{42}, \beta_{52}, \beta_{62}$	166	11	0.89	0.65	9	3
T2 Structural	182	14	0.76	0.70	-	-
$\beta_{41}, \beta_{51}, \beta_{61}$	164	11	0.78	0.57	18	3
$\beta_{42}, \beta_{52}, \beta_{62}$	138	11	0.82	0.59	44	3

All χ^2 are significant.

The saturated models have additional (named) effects estimated.

Table 5-11 (continued)

SUPPLIERS HIGH TRUST

<u>MODEL</u>	<u>χ^2</u>	<u>df</u>	<u>CFI</u>	<u>PNFI</u>	<u>χ^2</u> <u>diff</u>	<u>df</u> <u>diff</u>
T1 Structural	557	14	0.53	0.49	-	-
$\beta_{41}, \beta_{51}, \beta_{61}$	502	11	0.57	0.42	55	3
$\beta_{42}, \beta_{52}, \beta_{62}$	537	11	0.54	0.40	20	3
T2 Structural	480	14	0.58	0.53	-	-
$\beta_{41}, \beta_{51}, \beta_{61}$	426	11	0.62	0.45	54	3
$\beta_{42}, \beta_{52}, \beta_{62}$	408	11	0.64	0.47	72	3

SUPPLIERS LOW TRUST

<u>MODEL</u>	<u>χ^2</u>	<u>df</u>	<u>CFI</u>	<u>PNFI</u>	<u>χ^2</u> <u>diff</u>	<u>df</u> <u>diff</u>
T1 Structural	87	14	0.84	0.77	-	-
$\beta_{41}, \beta_{51}, \beta_{61}$	86	11	0.84	0.60	1	3
$\beta_{42}, \beta_{52}, \beta_{62}$	81	11	0.85	0.61	6	3
T2 Structural	417	14	0.57	0.53	-	-
$\beta_{41}, \beta_{51}, \beta_{61}$	328	11	0.66	0.48	89	3
$\beta_{42}, \beta_{52}, \beta_{62}$	299	11	0.70	0.50	118	3

All χ^2 are significant except for those in bold.

Table 5-12

Longitudinal Structural Model Parameter Estimates

	<u>BUYERS</u>				<u>SUPPLIERS</u>			
EFFECT	HIGH TRUST	LOW TRUST			HIGH TRUST	LOW TRUST		
Time 1								
β_{31}	-0.03	0.12	*** a		0.28	*** b	0.51	***ab c(.1)
β_{32}	0.72 ***ab c(.1)	0.57	*** b		0.40	***	0.38	***
β_{43}	0.70 *** abc	0.39	***		0.47	*** c(.1)	0.52	*** b
β_{53}	0.54 ***	0.41	***		0.38	***	0.36	*** c
β_{63}	0.73 *** b	0.76	*** ab		0.24	***	0.49	*** a
Time 2								
β_{97}	0.12 *** c	0.12	***		0.46	*** bc	0.46	*** b
β_{98}	0.64 *** b	0.83	*** abc		0.31	***	0.34	***
$\beta_{10,9}$	0.51 *** b	0.51	*** c		0.36	***	0.43	***
$\beta_{11,9}$	0.56 *** abc	0.35	*** b		0.30	*** a	0.13	*
$\beta_{12,9}$	0.69 *** b	0.80	*** bc		0.39	***	0.41	***
Intermediate								
β_{74}	0.17 *** b	0.18	*** b		0.00	a	-0.13	***
β_{75}	0.28 *** a	0.01			0.25	*** a	-0.02	
β_{86}	-0.44 ***	-0.38	***		-0.16 ***		0.19	*** ab

All estimates are completely standardized.

*.1 **.05 ***.01

a Significantly greater than corresponding estimate within-group (high trust buyers β_{31} vs. low trust buyers β_{31}).

b Significantly greater than corresponding estimate across groups (e.g., high trust buyers β_{31} vs. high trust suppliers β_{31}).

c Significantly greater than corresponding estimate over time (e.g., high trust buyers β_{31} vs. high trust buyers β_{97}).

a-c(.1) marginally significant

Table 5-12 (continued)

	<u>BUYERS</u>			<u>SUPPLIERS</u>		
<u>EFFECT</u>	<u>HIGH TRUST</u>	<u>LOW TRUST</u>		<u>HIGH TRUST</u>	<u>LOW TRUST</u>	
Correlations Between Time 1 & 2						
φ71	0.29 ***	0.65 ***		0.13 ***	0.75 ***	
φ82	1.20 ***	1.08 ***		0.40 ***	0.06	
φ93	0.74 ***	0.93 ***		0.58 ***	0.68 ***	
φ10,4	0.53 ***	0.61 ***		0.49 ***	0.63 ***	
φ11,5	0.64 ***	0.50 ***		0.59 ***	0.55 ***	
φ12,6	0.33 ***	0.90 ***		0.16 *	0.56 ***	

Table 5-13

Longitudinal Saturated Model Summaries

BUYERS HIGH TRUST

<u>MODEL</u>	<u>χ^2</u>	<u>df</u>	<u>CFI</u>	<u>PNFI</u>	<u>χ^2</u> <u>diff</u>	<u>df</u> <u>diff</u>
Structural	782	57	0.88	0.75	-	-
$\beta_{41}, \beta_{51}, \beta_{61}$	711	54	0.89	0.72	71	3
$\beta_{42}, \beta_{52}, \beta_{62}$	672	54	0.89	0.73	110	3
$\beta_{10,7} \beta_{11,7} \beta_{12,7}$	767	54	0.88	0.71	15	3
$\beta_{10,8} \beta_{11,8} \beta_{12,8}$	769	54	0.88	0.71	13	3
β_{94}	947	56	0.85	0.71	-165	1
β_{95}	687	56	0.89	0.75	95	1
β_{96}	662	56	0.90	0.75	120	1

BUYERS LOW TRUST

<u>MODEL</u>	<u>χ^2</u>	<u>df</u>	<u>CFI</u>	<u>PNFI</u>	<u>χ^2</u> <u>diff</u>	<u>df</u> <u>diff</u>
T1 Structural	494	57	0.96	0.83	-	-
$\beta_{41}, \beta_{51}, \beta_{61}$	436	54	0.97	0.79	58	3
$\beta_{42}, \beta_{52}, \beta_{62}$	414	54	0.97	0.79	80	3
$\beta_{10,-} \beta_{11,7} \beta_{12,7}$	481	54	0.97	0.79	13	3
$\beta_{10,8} \beta_{11,8} \beta_{12,8}$	490	54	0.96	0.79	4	3
β_{94}	456	56	0.97	0.82	38	1
β_{95}	475	56	0.97	0.82	19	1
β_{96}	487	56	0.97	0.82	7	1

All χ^2 are significant except for those in bold.

The saturated models have additional (named) effects estimated.

Table 5-13 (continued)

SUPPLIERS HIGH TRUST

<u>MODEL</u>	<u>χ^2</u>	<u>df</u>	<u>CFI</u>	<u>PNFI</u>	<u>χ^2</u> <u>diff</u>	<u>df</u> <u>diff</u>
T1 Structural	943	57	0.71	0.60	-	-
$\beta_{41}, \beta_{51}, \beta_{61}$	848	54	0.74	0.59	95	3
$\beta_{42}, \beta_{52}, \beta_{62}$	867	54	0.73	0.59	76	3
$\beta_{10,7} \beta_{11,7} \beta_{12,7}$	899	54	0.72	0.58	44	3
$\beta_{10,8} \beta_{11,8} \beta_{12,8}$	851	54	0.74	0.59	92	3
β_{94}	940	56	0.71	0.59	3	1
β_{95}	940	56	0.71	0.59	3	1
β_{96}	934	56	0.71	0.59	9	1

SUPPLIERS LOW TRUST

<u>MODEL</u>	<u>χ^2</u>	<u>df</u>	<u>CFI</u>	<u>PNFI</u>	<u>χ^2</u> <u>diff</u>	<u>df</u> <u>diff</u>
T1 Structural	684	57	0.84	0.72	-	-
$\beta_{41}, \beta_{51}, \beta_{61}$	586	54	0.86	0.70	98	3
$\beta_{42}, \beta_{52}, \beta_{62}$	488	54	0.89	0.72	196	3
$\beta_{10,7} \beta_{11,7} \beta_{12,7}$	611	54	0.86	0.69	73	3
$\beta_{10,8} \beta_{11,8} \beta_{12,8}$	583	54	0.87	0.70	101	3
β_{94}	670	56	0.84	0.71	14	1
β_{95}	682	56	0.84	0.70	2	1
β_{96}	665	56	0.84	0.71	19	1

All χ^2 are significant except for those in bold.

CHAPTER 6 DISCUSSION

Overview

The results of the data analysis in the previous chapter provide empirical support for the theoretical model. The causal order and hypothesized mediating links in the process of developing strategic advantages appear to be empirically consistent with the data. In this chapter, the results are examined in greater detail. The contributions of the dissertation are delineated, implications for management are developed and directions for future research are presented. Finally, the chapter concludes with a discussion of the limitations of the study.

Discussion of Results

In the next few sections, the results of the previous chapter will be discussed in greater detail. Perceptual differences between buyers and suppliers will be highlighted and speculation on the causes behind the differences is offered. After a brief section on the cross sectional results, the focus moves to the longitudinal results and dynamic effects.

Cross Sectional Results

The cross sectional results appear to support the basic strategic advantage development process hypothesized in Chapter 3, with the exception of environmental effects. Characteristics of the partnering firm such as goal compatibility and complementary competencies appear to be important in determining the likelihood that buyers and suppliers will develop strategic advantages together. Moreover, when the dyad works closely to develop strategic advantages, the process mediates the achievement of synergistic results such as strategic advantages and joint profits, and leads to the creation of relationship-specific, idiosyncratic assets.

The environment appears to have little impact on the dyad's decision to develop strategic advantages. Although at first glance, this appears counter to past work on the effects of the environment in the organizational behavior literature, the result can be explained by the fact that the environment measured in the present study is the local, SBU-level environment immediately surrounding the informants and not the corporate level environment surrounding the firm. This latter environment is what has been most frequently measured in past organizational behavior research.

Post study interviews with managers appears supportive of this conclusion. It seems that the environment impacts the dyad through broad, organizational directives that are

decided upon by corporate executives in response to industry conditions. For example, one firm told of how executives told the entire purchasing division that a 15% reduction in price had to be achieved within the next year, because of competitive industry demands.

Given the clear null effects of the environment on developing strategic advantages, these variables were eliminated from the model and all subsequent analyses were conducted on the reduced model.

Antecedents

Time one. The interactions between trust and the antecedents were somewhat mixed at time one. The interaction with goal compatibility was reversed. It appears that goal compatibility is a stronger predictor of developing strategic advantages under low trust than under high trust. It could be that goal compatibility acts as an important assurance under uncertainty--similar goals assure the members that the other will "walk the same path." In the absence of trust, goal compatibility acts as a powerful assurance that the other member would not act opportunistically if given the chance to do so. However, when trust is high, goal compatibility becomes consistent, but not necessarily diagnostic information in the decision to become interdependent upon each other.

There is much research on interpersonal relations that examines the role of trust in dispelling doubt and

uncertainty (Boon 1994; Boon & Holmes 1991; Holmes 1991; Kelley & Thibaut 1978; Kelvin 1977; Lewis & Weigert 1985a; Lewis & Weigert 1985b; Luhmann 1988; Silver 1989). All of them point to the importance of trust in the face of uncertainty:

In the same very real way that mutual trust enables a pair of mountain climbers to conquer the mountain, it provides the critical platform from which relationship partners may confidently approach the task of decision making. It provides the implicit contract of good intentions that permits the negotiation of situations that conspire to awaken us to the ways in which we are vulnerable in our relationships. (Boon 1994, p. 88)

In light of the significant role that trust can play in assuring each member of the other's confidence, it's easy to see why goal compatibility would become a less important predictor of developing strategic advantages when trust is high.

For both buyers and suppliers, complementary competencies predict whether the dyad will work closely together, regardless of trust. Such abilities are strong assurances that the payoffs from working closely together will be achieved. When competencies are complementary, there is a strong incentive to work together since each member is able to provide what the other needs. Hence, there is more confidence that the pie will be expanded successfully.

The hypothesized interaction with complementary competencies was observed only for buyers. For them, a high level of trust and the presence of complementary competencies created a more powerful incentive for developing strategic

advantages than when trust was low. Since the buyers are generally in a position of greater power in the sampled relationships, they may have more supplier options to work closely with than the suppliers would. For buyers, knowing that a supplier has a complementary competency and is trustworthy will result in the buyer being more willing to develop greater interdependence with the supplier. To the more powerful member, trust becomes diagnostic information about who to work closely with.

Suppliers may not be able to afford this luxury. As the less powerful member, they will develop strategic advantages when complementary competencies or goal compatibility is present. Even when trust is high, goal compatibility for suppliers is a more important predictor of whether strategic advantages are developed than for buyers under high trust.

Time two. Over time, the importance of factors in determining the engagement in strategic advantage development and the outcomes of such actions changes. For buyers, the interactions observed earlier dissipate or reverse. Goal compatibility becomes increasingly important under high trust, eliminating the earlier interaction. Evidently, as time passes, similar goals become powerful predictors of the benefits of working closely together. As before, complementary competencies remains a significant predictor of whether buyers will work closely together. When trust is low, complementary competencies becomes increasingly important for buyers. In the absence of trust, it appears

that they require very powerful assurances of the other member's abilities in order to justify the potential risks of becoming interdependent.

Dynamic effects. Although goal compatibility is important for buyers and suppliers early in the relationship in the absence of trust, over time, goal compatibility becomes an important predictor of whether the dyad continues to develop strategic advantages particularly when trust is high. For buyers, complementary competencies are particularly important early in the relationship when trust is high, but later in the relationship the competencies become more important in the absence of trust.

Collectively, the results point to the purposive nature of developing strategic advantages together. Such close relationships are economically driven and not interpersonally driven. Interpersonal factors such as trust can signal important information under uncertainty, but as members become more familiar with each other and certain about their situation, continued development of strategic advantage depends heavily upon member competencies and goals. Even in the absence of trust, development of strategic advantages is possible, provided that the necessary competencies are present.

For suppliers, the goal compatibility interaction also disappeared over time. Similar goals are equally important under high and low trust. Complementary competencies also remain an important predictor, as before. Thus, for

suppliers at time two, trust makes little difference in determining whether the dyad will work closely together.

It is also interesting to note a clear perceptual difference between buyers and suppliers that occurs at time one and two. For buyers, complementary competencies have greater effects on the likelihood that the dyad will develop strategic advantages together, while goal compatibility has a greater effect for suppliers. Hence, it appears that for buyers, the more powerful member, whether or not the supplier has similar goals is less important than whether the supplier is able to provide a needed competency. Suppliers need to please their customers. For them, it is less important that their customer has complementary competencies, since they are trying to support the customer's agenda and needs.

In summary, goal compatibility acts as a substitute for trust early in the relationship in determining whether buyers and suppliers will work closely together, and over time, becomes an important predictor regardless of the level of trust. Complementary competencies always play an important predictor of developing strategic advantages, providing powerful assurances of the payoffs of working closely together. There are also differences in how these factors operate for buyers and suppliers over time. For buyers, complementary competencies are more important than common goals, particularly when trust is low. For suppliers, goal compatibility is more important than competencies.

Consequences

Cross sectional effects. The most robust results of the study were with respect to the outcomes of developing strategic advantages. The payoffs are clearly available for buyers and suppliers. When the dyads work closely together, they are able to achieve strategic advantages over competing dyads and increased joint profits. The process also is a strong predictor of the creation of relationship-specific, idiosyncratic assets.

Dynamic effects. Because of the median split approach used, interaction effects between trust and the development of strategic advantages on the consequences were also observable. The conclusions made at this point are purely exploratory and speculative in nature. The results are discussed because they suggest some interesting and unexpected findings that may present potential areas for future research.

Early in the relationship, it appears that developing strategic advantages has a greater effect on idiosyncratic assets when trust is low than when trust is high. This interaction disappears over time. It could be that these assets are created earlier in the relationship when trust is low. Such assets act as credible signals of each member's commitment to the relationship and provide relationship stabilizing effects that may be important in the absence of trust (E. Anderson & Weitz 1992; Williamson 1985).

Later in the relationship, another interaction is observed, this time between trust and the development of strategic advantages on joint profits. For buyers and suppliers, this effect is enhanced under high trust. Hence, it appears that trust operates in different ways over time. Early in the relationship, trust is critical to decision making under uncertainty, while later in the relationship, it appears to facilitate positive outcomes.

The effect of working closely together on the attainment of strategic advantages appears to be stronger at time one than at time two when trust is high. Hence, for buyers and suppliers, trust appears to play a more important role in facilitating the goals of the relationship--the attainment of strategic advantages earlier in the relationship than later.

For buyers, when trust is low, the development of strategic advantages on the attainment of strategic advantages and idiosyncratic assets has a greater effect later in the relationship. Hence, it appears that in the absence of trust, these positive effects occur later in the relationship. More time is necessary for the dyad to get to the point where they are achieving a high level of synergistic effects when the buyer does not trust the supplier.

In summary, it appears that working closely to develop strategic advantages does lead to synergistic results in general. However, the positivity or negativity of trust does exert significant effects on this process over time. When

trust is high, strategic advantages are achieved sooner in the relationship. When trust is low for buyers, this effect takes considerably longer to occur. Also, the effect of developing strategic advantages on joint profits are considerably higher when trust is high at time two. Developing strategic advantages requires a higher level of idiosyncratic assets earlier in the relationship when trust is low. This effect increases over time for buyers when trust is low.

Intermediary Results Between Time One and Two

The fruits of success--strategic advantages and joint profits appear to operate differently for buyers and suppliers. For buyers, gaining strategic advantages in time one increases goal compatibility at time two. This was not true for suppliers. For both buyers and suppliers, joint profits earned at time one increased goal compatibility when trust was high, but not when trust was low. Evidently, trust has a significant effect on how perceptions are shaped. When trust is high, members make other consistently positive inferences--goal compatibility is high. When trust is low, members feel less secure, and even after higher joint profits are achieved, higher goal compatibility is not inferred. These results are consistent with findings in interpersonal research that says that individuals tend to adopt outlooks or

expectations that are consistent with prior beliefs (cf., Bowlby 1977, Holmes & Rempel 1989; Johnson & Rusbult 1989; Kelley & Thibaut 1978).

The creation of idiosyncratic assets in time one generally led to decreases in complementary competencies at time two. Evidently, during the process of working together, these competencies become less unique as members learn more about each other. The relationship-specific assets that are created are meant to support the goals and objectives of the mutual relationship--the attainment of strategic advantages, and not necessarily the strengthening of individual competencies. On a methodological note, the scales to measure complementary competencies in this study were designed to specifically tap the unique, separate abilities of each that are being used in the relationship. Over time, as these abilities are used to support the joint goals and activities, they are likely to seem less unique to the informants than earlier in the relationship.

Contributions of the Dissertation

The dissertation advances our understanding of strategic advantage development in buyer-supplier relationships in a number of ways. To begin with, it points to the role of strategic advantage development as a mediating factor of key relationship outcomes such as strategic advantages, increased joint profits, and idiosyncratic asset creation.

The study also points to the importance of similar goals in the decision to work closely together. Goal compatibility provides important assurances of nonopportunistic behavior early in the relationship if members do not trust each other. Later in the relationship, common goals provide an important reason for the dyad to continue to develop strategic advantages over time.

The dissertation is one of the first to posit complementary competencies as a key interorganizational construct. Although a number of practitioners point to the importance of competencies in buyer-supplier relationships (Jap 1992), there is no systematic work to date on complementary competencies and their role in expanding the size of the pie between member firms. These competencies provide powerful assurances to the members of successful pie expansion.

By focusing on mutual trust, the dissertation highlights the importance of interpersonal relationships in the interorganizational process of developing strategic advantages. Moreover, this is the first marketing study to examine the dynamic role of interpersonal trust in interorganizational relationships. Trust is shown to be a clear determinant of whether firms work closely to develop strategic advantages early in the relationship. Over time, it is an important facilitator of strategic advantages and joint profits. Trust also shapes the inferences that are

made between time one and two. When trust is high, members perceive increased goal compatibility as the result of earning joint profits.

When trust is low, earning joint profits has no effect on perceptions of goal compatibility. Additionally, when trust is low, idiosyncratic assets become increasingly important, potentially offering key relationship-stabilizing effects in the absence of trust. For buyers, when trust is low, it takes longer to observe the increased effects on strategic advantages that were observed earlier when trust was high.

Our knowledge of the role of idiosyncratic assets in interorganizational relationships has also been expanded as a result of this research. Idiosyncratic assets are useful in helping to expand the size of the pie between firms. Instead of being a liability to firms that should be minimized, as in the transaction cost analysis view, idiosyncratic assets represent a means by which a relationship that is mutually beneficial to both firms can also simultaneously satisfy the individual interests of each firm (Zajac & Olsen 1993). These assets form the structure of the relationship surrounding the dyad's exchange.

This structure influences each firm's conduct and performance in the relationship. By creating idiosyncratic assets, members realize that termination of the relationship for nonsubstantial or insignificant reasons can be very costly (Williamson 1985). Hence, they provide the dyad with

an incentive to maintain the relationship, represent credible signs of commitment (E. Anderson & Weitz 1992) and increases their willingness to engage in joint activities (Heide 1990).

Finally, the dissertation is the first longitudinal, interorganizational study in marketing. Channel researchers have long advocated the need for longitudinal designs in understanding interorganizational dynamics, yet to date, no one has ever undertaken such a task. In this study, an attempt has been made to understand the joint relationship between two firms using informants from both sides of the relationship and analyzing their reports over time.

Implications for Management

The results suggest a number of implications for management. First, the decision to develop strategic advantages is not solely a matter of trust. If for some reason, there is a low level of interpersonal trust in the relationship, firms can still work together and be assured that the other firm will not act opportunistically by examining the other firm's goals in the relationship. If their goals are similar--i.e., provide a superior value product to the market place, reduce lead time to market by x number of days or weeks, etc.--then the pie can still be successfully expanded.

It is also helpful for buyers to know that goal compatibility is a key consideration for suppliers who are considering working more closely with a customer. Suppliers

tend to be less concerned about skill complementarity and more concerned with goal congruency. To them, it is important to know that they are moving in the same direction as their customer.

Second, the results clearly indicate that complementary competencies are an important aspect of developing strategic advantages together. These competencies provide powerful assurances that the other member has the necessary abilities to expand the joint pie size. This is particularly true for buyers in the absence of trust.

For suppliers, it is useful to know that complementary competencies are the most important factor to buyers in determining whether they will work closely with a supplier. The second important factor to a buyer in the decision-process is the level of trust. When trust is high and the competencies in the relationship are complementary, buyers have a powerful incentive to work closely together. Also, achieving strategic advantage over competing dyads tends to strengthen the buyers' perceptions of goal compatibility, which is an important factor in determining whether the buyer will continue to develop strategic advantages with the supplier in the future.

Third, there are clear payoffs from working closely together. When buyers and suppliers become interdependent in the development of strategic advantage, strategic advantages over competing dyads are achieved, joint profits are increased, and the creation of idiosyncratic assets are

necessary. This provides a powerful basis from which the dyad can continue to work together in the future. Other competing dyads in the marketplace who have not yet worked closely to develop strategic advantages still must go through the time, effort, and occasional frustration involved to reach the same level of intimacy between their firms. Hence, the relationship itself can potentially become a key source of sustainable advantage.

Trust is an important factor to facilitate in the process, although it's not entirely necessary to achieve the synergistic results desired. However, if trust is developed early in the relationship, the process of working closely together will be more likely to lead to achievement of strategic advantages sooner in the relationship and any success that is earned in terms of joint profits will positively color the relationship in the future, by making goals appear more compatible. When trust is not present, idiosyncratic assets are necessary sooner in the relationship. Over time under low trust, buyers rely on complementary competencies in order to continue developing strategic advantages and idiosyncratic assets become more necessary.

Directions for Future Research

The dissertation focuses on a small set of constructs in the process of developing strategic advantages. Future research could begin by addressing the role of additional

factors (e.g., information technology, contracts, etc.) on the process and its effects on an even broader array of outcomes (e.g., product quality, lead times to market, decision-making quality, competitiveness, etc.).

This study has focused primarily on the factors of successful, synergistic relationship. Another useful direction would be to better understand the limits of these close relationships. In other words, when do interdependent relationships become harmful? It's possible that the creation of idiosyncratic assets keeps the dyad from being flexible enough to quickly respond to changes in the marketplace or consumer needs. Alternatively, a high level of trust may actually lead to social loafing or "free riding," on the part of one member. Studies on Japanese culture with its emphasis on cooperation and harmony have described how these can lead to bias, bullying, conformity, etc. Little is known to date about the limits of close relationships between organizations.

Another avenue for future research would be to examine individual differences in dealing with uncertainty. Sorrentino et al. (1995) investigated how individual differences in styles of coping operated in marriage relationships. They found that certainty-oriented individuals had coping problems in situations of moderate trust. They used high/low conclusions about trust as a heuristic for reconstructing the past so as to maintain cognitive clarity. Clearly, there is room for much

perceptual bias in such a response. Such individuals avoided situations that might confront them with new or potentially inconsistent information. On the other hand, uncertainty-oriented individuals typically only attained a moderate level of trust in their relationships. This could be a problematic trait in an interorganizational context, given that trust can play an important facilitating role of key outcomes in the relationship.

Dwyer, Schurr, and Oh (1987) point out that interorganizational relationships, like personal relationships, proceeds through various phases, such as awareness, exploration, development, commitment, and dissolution. The dynamics investigated in this study take place primarily in the mature phase of the relationship's life cycle. However, more work is needed that explains how the development of strategic advantages is managed during other phases.

For example, how does the dyad reach the point at which the development of strategic advantages even becomes a decision in the relationship? What is done to build the level of trust necessary and how are competencies and goals communicated up to that point? Past maturity, how does the dyad determine when developing strategic advantages is no longer worthwhile--in other words, what are the signals that they send to tell each other that the relationship is no longer providing the level of benefits needed or expected. Do they then discontinue the relationship or phase out the

level of activities slowly? Clearly, there is still much to be understood about how to optimally manage the interorganizational relationship from beginning to end.

Finally, more research is needed to better understand the lack of perceptual agreement that so often occurs in multiple informant studies. This requires methodological work--i.e., how to better design the survey instrument so as to insure that informants use the same point of reference, time span, and events in formulating their responses--and theoretical work on how the buyers and suppliers perceive their joint relationship. It's possible that both sides attend to different factors in the relationship and weigh these things differently in assessing the level of trust or the nature of other interorganizational constructs that exist in the relationship.

Limitations

There are a few limitations that should be taken into consideration when evaluating the contribution of the study. The first is that the sampled relationships involve buyers with substantial power in the relationship. Their sales to the supplier typically represent 30% of the supplier's total sales. An attempt was made to also gain access to the participating organizations' salesforces--this would have allowed sampling dyads with powerful suppliers--but the requests were rejected. In light of this, one should be cautious about generalizing the results to relationships that

are more equally balanced in terms of power. However, the study is still informative, in that it shows that even in asymmetrical power relationships, mutual, synergistic results can be earned by both firms. Moreover, a large proportion of vertical relationships in the market place are asymmetric in power by nature.

Second, it would have been desirable to have larger sample sizes in the four group analysis. Boomsma (1982) has shown that maximum-likelihood estimation with sample sizes less than 100 is typically problematic. Although Gerbing and J. C. Anderson (1985) clarified this, by showing that LISREL was able to provide reasonably robust estimates, still, as the number of observables to the number of factors increases (Guadagnoli & Velicer 1988) or as the number of factors in a system increase (Tanaka 1984), estimation is degraded. Although the sample sizes used here were relatively reasonable--150+ in each group--the complexity of the model and the borderline size may have contributed to the observance of an occasional anomalous result.

Third, the one year time lag creates a bias against observing dynamic changes. It is possible that all of the constructs examined in the dissertation exert differential effects over the course of a buyer supplier relationship. Factors that are important in earlier stages may become less important in the post-maturity stages, and vice-versa. With a one year time lag, some of these effects may have been missed.

Finally, the study is also one of a few that take a dyadic approach in testing hypotheses about the relationship. Dyadic model specification, particularly on the development of strategic advantages, is still at an early stage. Only five other large-scale empirical studies of dyadic relationships have been conducted to date: E. Anderson and Weitz 1992; El-Ansary and Stern 1972; Eliashberg and Michie 1984; John and Reve 1982; Rosenberg and Stern 1972.

Summary

In this chapter, the results of Chapter 5 were discussed in detail, the significance of the dissertation was outlined, and implications for management were delineated. The dissertation represents a first step in better understanding how buyers and suppliers approach the decision to develop strategic advantages in their relationships. The longitudinal approach undertaken here provides insight into the roles and effects of critical factors in the relationship that affect important interorganizational outcomes. The results suggest that factors such as goal compatibility, complementary competencies, and trust exert differential effects early and later in the relationship and that this can sometimes vary in importance for the buyer and supplier. By better understanding these effects, both parties can learn how to better manage and coordinate their exchange over time.

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APPENDIX A
BUYER SURVEY: TIME 1

MEMORANDUM

TO: Company Name Buyers
FROM: Executive Name
RE: Attached Surveys

Your Company Name/Division has recently agreed to participate in a university study that examines the relationships formed between manufacturing buyers and their suppliers.

I would like for you to complete two questionnaires, each on a different supplier. These suppliers will be sent a similar questionnaire in the next month. This is a long-term study; hence, you and the suppliers will be asked to complete a questionnaire now and again one year from now.

The questionnaires are short, requiring no more than fifteen minutes each to complete. They should be returned directly to the researchers as soon as possible. Your responses and the responses of the suppliers will be kept completely confidential and will be seen only by the researchers.

Thank you for your participation.

Dear Sir/Madam,

You have been selected to participate in a long-range study aimed at better understanding the relationships formed between industrial buyers and their suppliers. As part of the study you will be asked to complete this questionnaire with respect to one focal supplier that you currently work with. You will also be asked to supply the name and address of one key individual at that company whom you have worked with on a frequent basis for at least one year. Both of you will be asked to complete similar questionnaires that assess your mutual relationship now and again one year from now.

The survey is just asking for your opinions and feelings, and there are no right or wrong answers. Pretests have indicated that you should be able to complete it in 15 minutes. The sample is limited and therefore your responses are extremely important. All of your responses will be kept completely confidential and will not be revealed to the supplier, your employer, or competitors. Any information given will be averaged across the responses of many other buyers so that no one's individual answers can be determined.

Please return the questionnaire in the enclosed postage-paid envelope as soon as possible. Support for this project is being provided by the Institute for the Study of Business Markets at Pennsylvania State University and a grant from the Marketing Science Institute. If you have any questions or concerns, feel free to contact us at the above address or by calling 904-376-1584.

Thank you in advance for your participation.

Sandy Jap
Doctoral Candidate

Barton A. Weitz
J.C. Penney Eminent Scholar/
Professor of Marketing

This survey looks at various aspects of buyer-supplier relationships. Relationships can occur at two levels: between the firms and between individuals from each firm. You will be asked first about the relationship between your firm and the supplier firm and then about your individual relationship with one of their representatives.

RELATIONSHIP BETWEEN FIRMS

Please print below the company name of a supplier that you have worked with for at least one year or more. This supplier does not necessarily have to be your "most important" or "most favored" supplier although it can be. We want to sample from a wide variety of relationships so that comparisons can be made across different types.

_____ Supplier Company Name _____

How long has your company done business with this supplier?

_____ Years

What is the approximate annual level of purchases that you make or are responsible for from this supplier? \$_____

Check one category that best describes the products that you buy from this supplier:

- capital equipment
- maintenance, repair, and operating supplies
- sub assemblies
- components
- other (please specify)

Check one statement that best describes the type of purchase made from this supplier:

- Most of our purchases are complex, first-time purchases meant to solve a particular problem or need that we have.
- Most of our purchases are very routine, meant to restock or replenish our existing product levels.
- Most of our purchases are a mixture of first-time purchases, routine purchases, or modified routine purchases.

How frequently do problems arise between your firm and this firm?

hardly ever	1	2	3	4	5	6	7	very often
-------------	---	---	---	---	---	---	---	------------

Relationships typically evolve through a number of phases over time. Which of the following best describe your firm's relationship with this supplier? (check only one)

- | | |
|---------------|---|
| Exploration | Both firms are discovering and testing the goal compatibility, integrity, and performance of the other as well as potential obligations, benefits, and burdens involved with working together on a long-term basis. |
| Buildup | Both firms are receiving increasing benefits from the relationship and a level of trust and satisfaction has been developed such that they are more willing to become committed to the relationship on a long-term basis. |
| Maturity | Both firms have an ongoing, long-term relationship in which both are receiving acceptable levels of satisfaction and benefits from the relationship. |
| Decline | One or both firms have begun to experience dissatisfaction and is contemplating relationship termination, considering alternative suppliers or buyers and is beginning to communicate an intent to end the relationship. |
| Deterioration | The firms have begun to negotiate terms for ending the relationship and/or are currently in the process of dissolving the relationship. |

Please indicate the extent to which you agree/disagree with the following statements by marking through the number that best describes your opinion. Keep in mind that there are no right or wrong answers; do not be concerned about giving different answers to questions that seem similar. There is some redundancy built into the statements to account for the fact that some people may read and interpret the statements differently.

Strongly Disagree	Strongly Agree
----------------------	-------------------

The firms share the same goals in the relationship. 1 2 3 4 5 6 7

They contribute different capabilities to the relationship. 1 2 3 4 5 6 7

They work on joint projects tailored to their needs. 1 2 3 4 5 6 7

	Strongly Disagree				Strongly Agree			
	1	2	3	4	5	6	7	
If this relationship were to end, they would be wasting a lot of knowledge that's tailored to their relationship.								
They have both gained strategic advantages over their competitors.	1	2	3	4	5	6	7	
They have achieved a high level of joint profits between them.	1	2	3	4	5	6	7	
They depend on each other for resources or outcomes that are unattainable elsewhere.	1	2	3	4	5	6	7	
They have compatible goals.	1	2	3	4	5	6	7	
They have complementary strengths that are useful to their relationship.	1	2	3	4	5	6	7	
If either company were to switch to a competitive buyer or vendor, they would lose a lot of the investments made in the present relationship.	1	2	3	4	5	6	7	
They work together to exploit unique opportunities.	1	2	3	4	5	6	7	
Their relationship has not resulted in strategic advantages for them.	1	2	3	4	5	6	7	
There is little joint profit generated from the relationship.	1	2	3	4	5	6	7	
They can easily get the same benefits or resources from their relationship with alternative buyers or vendors.	1	2	3	4	5	6	7	
They support each other's objectives.	1	2	3	4	5	6	7	
They contribute different resources to the relationship that helps them achieve mutual goals.	1	2	3	4	5	6	7	
They have gained benefits that enable them to compete more effectively in the marketplace.	1	2	3	4	5	6	7	
Both companies are able to come up with innovative solutions to problems.	1	2	3	4	5	6	7	

	Strongly Disagree			Strongly Agree			
	1	2	3	4	5	6	7
They have invested a great deal in building up their joint business.							
They have generated a lot of profits together.	1	2	3	4	5	6	7
They have different goals.	1	2	3	4	5	6	7
They have separate abilities that, when combined together, enable them to achieve goals beyond their individual reach.	1	2	3	4	5	6	7
Both companies are always looking for synergistic ways to do business together.	1	2	3	4	5	6	7
They have developed procedures, routines, and understanding tailored to their relationship.	1	2	3	4	5	6	7
The relationship has not resulted in strategically important outcomes.	1	2	3	4	5	6	7
They have increased joint profits shared between them.	1	2	3	4	5	6	7
Both firms have gained benefits that would have been impossible to gain on their own.	1	2	3	4	5	6	7
By working together, they achieve things that they can't achieve individually.	1	2	3	4	5	6	7
Our relationship with this firm will last far into the future.	1	2	3	4	5	6	7
We expect to terminate our relationship with this firm soon.	1	2	3	4	5	6	7
Our relationship with this firm is getting worse.	1	2	3	4	5	6	7
When a problem occurs we make fewer and fewer first-time purchases from this supplier.	1	2	3	4	5	6	7
Our relationship with this firm is getting better.	1	2	3	4	5	6	7

	Strongly Disagree							Strongly Agree
	1	2	3	4	5	6	7	
We try to repair the problems that occur between us.								
We expect to continue working with this firm on a long-term basis.	1	2	3	4	5	6	7	
Our relationship with this firm is deteriorating.	1	2	3	4	5	6	7	
We try to work things out when a problem arises.	1	2	3	4	5	6	7	
We reduce our purchases from this supplier when a problem occurs.	1	2	3	4	5	6	7	
Our relationship with this firm is improving.	1	2	3	4	5	6	7	

Your firm may make investments in time, energy, and/or money specifically to accommodate a particular supplier and its products. These investments would be lost if your firm switched to another supplier. Please indicate the extent to which your firm has made investments or changes specifically to accommodate this supplier.

	Not at All							Very Much
	1	2	3	4	5	6	7	
Just for this supplier we changed our...								
...product requirements	1	2	3	4	5	6	7	
...production procedures	1	2	3	4	5	6	7	
...personnel	1	2	3	4	5	6	7	
...inventory and distribution	1	2	3	4	5	6	7	
...policies	1	2	3	4	5	6	7	
...marketing	1	2	3	4	5	6	7	
...systems	1	2	3	4	5	6	7	
...capital equipment and tools	1	2	3	4	5	6	7	
Just for this supplier we invested time...								
...training this supplier's personnel	1	2	3	4	5	6	7	
...learning this supplier's product	1	2	3	4	5	6	7	
...learning this supplier's procedures	1	2	3	4	5	6	7	
...verifying this supplier	1	2	3	4	5	6	7	

In this section, we would like to know what the supplier firm does when a problem occurs. Please complete this section with respect to the product category that you purchase from them.

Please note that the numbered responses now refers to the frequency of these behaviors instead of the degree to which you agree with statement.

When a problem occurs, how often will this firm do the following?

	hardly ever		very often					
	1	2	3	4	5	6	7	
They alert us of the problem.	1	2	3	4	5	6	7	
They don't appear to understand the problem.	1	2	3	4	5	6	7	
They are not cooperative.	1	2	3	4	5	6	7	
They are slow to respond to our inquiries.	1	2	3	4	5	6	7	
Their responses to our inquiries are inadequate.	1	2	3	4	5	6	7	
They are willing to negotiate a mutually agreeable solution to the problem.	1	2	3	4	5	6	7	
They "nickel and dime" us.	1	2	3	4	5	6	7	
They make hollow promises.	1	2	3	4	5	6	7	
They are aloof toward us.	1	2	3	4	5	6	7	
They give us opportunity to correct the problem.	1	2	3	4	5	6	7	
They "window dress" their efforts to improve.	1	2	3	4	5	6	7	
They expect us to pay for more than our fair share of the costs to correct the problem.	1	2	3	4	5	6	7	
Their service is very poor.	1	2	3	4	5	6	7	
They are unwilling to accept responsibility.	1	2	3	4	5	6	7	
They are unwilling to accept advice from us.	1	2	3	4	5	6	7	

	hardly ever		very often				
	1	2	3	4	5	6	7
They often help in correcting the problem.							
They make false accusations.	1	2	3	4	5	6	7
They provide false information.	1	2	3	4	5	6	7
Their document preparation is inadequate.	1	2	3	4	5	6	7
They fail to provide proper notification.	1	2	3	4	5	6	7
Their representatives are rude to us.	1	2	3	4	5	6	7

RELATIONSHIP WITH THE SUPPLIER REPRESENTATIVE

In this section, the focus will be on your relationship with a representative/contact from this supplier. This person should be an individual whom you have worked with on a frequent basis for at least one year. Please complete the following information on that person:

Supplier Contact/Representative Name
Mailing Address
City State Zip

How long have you worked with this individual? _____ Years

Again, please indicate the extent to which you agree/disagree with the following statements:

	Strongly Disagree		Strongly Agree				
	1	2	3	4	5	6	7
Our promises to each other are reliable.	1	2	3	4	5	6	7
Both of us are willing to take risks.	1	2	3	4	5	6	7
We are very honest in dealing with each other.	1	2	3	4	5	6	7
Both of us are willing to take chances with each other.	1	2	3	4	5	6	7
We trust each other.	1	2	3	4	5	6	7
We would go out of our way to help each other out.	1	2	3	4	5	6	7

	Strongly Disagree							Strongly Agree
	1	2	3	4	5	6	7	
We consider each other's interests when problems arise.								
We go out on a limb for each other.	1	2	3	4	5	6	7	
We would take advantage of each other if given the opportunity.	1	2	3	4	5	6	7	

THE ENVIRONMENT

This section assesses your perceptions of the external environment within the product category that you purchase from this particular supplier.

	Strongly Disagree							Strongly Agree
	1	2	3	4	5	6	7	
There is little potential for economic growth in our environment.								
The environmental demands on us are constantly changing.	1	2	3	4	5	6	7	
Customer preferences for our products vary greatly.	1	2	3	4	5	6	7	
The demand for the supplier's product(s) is high.	1	2	3	4	5	6	7	
Marketing practices in our industry are constantly changing.	1	2	3	4	5	6	7	
Our customers are demographically similar in terms of income, profession, education, social class, etc.	1	2	3	4	5	6	7	
The demand for the buyer's product(s) is high.	1	2	3	4	5	6	7	
Our competitors' strategies have remained the same over the years.	1	2	3	4	5	6	7	
The top firms in our industry control the majority of the resources available in the industry.	1	2	3	4	5	6	7	
There are a lot of exploitable opportunities available to us.	1	2	3	4	5	6	7	

	Strongly Disagree				Strongly Agree			
	1	2	3	4	5	6	7	
The product mixes in our industry changes frequently.								
There are a lot of small competitors in our industry.	1	2	3	4	5	6	7	
We have no problem securing the resources we need.	1	2	3	4	5	6	7	
Customer preferences in our industry are stable.	1	2	3	4	5	6	7	
Our industry is dominated by a few powerful players.	1	2	3	4	5	6	7	

YOUR BACKGROUND

How many total years of experience do you have in purchasing? _____ Years

How long have you been with your present company? _____ Years

Thank you for your participation in this survey. Please return this survey directly to us in the postage-paid, self-addressed envelope as soon as possible.

APPENDIX B
SUPPLIER SURVEY: TIME 1

Dear Company Name Supplier,

Company Name/Division has recently agreed to participate in a university study that examines the relationships formed between manufacturing purchasing agents and their suppliers. This is a long-term study that examines relationships between Company Name buyers and suppliers over a one year period; our buyers and a few key suppliers will be asked to complete similar questionnaires that assess their mutual relationships now and again one year from now.

Your name has been supplied to the researchers by a Company Name buyer. We would appreciate it if you would complete the questionnaire and return it directly to the researchers in the enclosed envelope as soon as possible. The questionnaire is short, requiring no more than ten minutes to complete.

Your responses will be kept completely confidential and averaged across the responses of many other suppliers so that your individual answers cannot be determined. All data collected from Company Name buyers and suppliers will be seen only by the university researchers.

Thank you for your participation and attention to this matter.

Sincerely,

Executive Name
Executive Title

Dear Sir/Madam,

You have been selected to participate in a long-range study aimed at better understanding the relationships formed between buyers and their suppliers. Your name was supplied to us by the buyer listed on the first page of the survey. As part of the study, both of you will be asked to complete similar questionnaires that assess your mutual relationship now and again one year from now.

The survey is just asking for your opinions and feelings, and there are no right or wrong answers. Pretests have indicated that you should be able to complete it in 10 minutes. The sample is limited and therefore your responses are extremely important. All of your responses will be kept completely confidential and will not be revealed to the buyer, your employer, or competitors. Any information given will be averaged across the responses of many other suppliers so that no one's individual answers can be determined. The first page of the survey has been coded by us to match your responses with the appropriate buyer.

Please return the questionnaire in the enclosed postage-paid envelope as soon as possible. Support for this project is being provided by the Institute for the Study of Business Markets at Pennsylvania State University and a grant from the Marketing Science Institute. If you have any questions or concerns, feel free to contact us at the above address or by calling 904-376-1584.

Thank you in advance for your participation.

Sandy Jap
Doctoral Candidate

Barton A. Weitz
J.C. Penney Eminent Scholar/
Professor of Marketing

This survey looks at various aspects of buyer-supplier relationships. Relationships can occur at two levels: between the firms and between individuals from each firm. On this page you will be asked about your relationship with the buyer below. The rest of the survey assesses the relationship between your firm and the buyer's firm.

Buyer's Name

How long have you worked with this individual? ____ Years

RELATIONSHIP WITH THE REPRESENTATIVE

Please indicate the degree to which you agree or disagree with the following statements by marking through the number that best describes your opinion. Keep in mind that there are no right or wrong answers; do not be concerned about giving different answers to questions that seem similar.

There is some redundancy built into the statements to account for the fact that some people may read and interpret the statements differently.

	Strongly Disagree						Strongly Agree
Our promises to each other are reliable.	1	2	3	4	5	6	7
Both of us are willing to take risks.	1	2	3	4	5	6	7
We are very honest in dealing with each other.	1	2	3	4	5	6	7
Both of us are willing to take chances with each other.	1	2	3	4	5	6	7
We trust each other.	1	2	3	4	5	6	7
We would go out of our way to help each other out.	1	2	3	4	5	6	7
We consider each other's interests when problems arise.	1	2	3	4	5	6	7
We go out on a limb for each other.	1	2	3	4	5	6	7
We would take advantage of each other if given the opportunity.	1	2	3	4	5	6	7

RELATIONSHIP BETWEEN FIRMS

In the next few pages, we are interesting in knowing more about your company's relationship with the buyer's firm.

How long has your company done business with this firm?

_____ Years

How long have you worked with this firm? _____ Years

Check one category that best describes the products that you sell to the buyer listed on the previous page:

- capital equipment
- maintenance, repair, and operating supplies
- sub assemblies
- components
- other (please specify)

What is your company's approximate annual level of total sales in this product category (including sales to the buyer listed above)? \$ _____

How frequently do problems arise between your firm and this firm?

hardly ever		very often				
1	2	3	4	5	6	7

Relationships typically evolve through a number of phases over time. Which of the following best describe your firm's relationship with this buyer firm? (check only one)

- | | |
|-------------|---|
| Exploration | Both firms are discovering and testing the goal compatibility, integrity, and performance of the other as well as potential obligations, benefits, and burdens involved with working together on a long-term basis. |
| Buildup | Both firms are receiving increasing benefits from the relationship and a level of trust and satisfaction has been developed such that they are more willing to become committed to the relationship on a long-term basis. |
| Maturity | Both firms have an ongoing, long-term relationship in which both are receiving acceptable levels of satisfaction and benefits from the relationship. |
| Decline | One or both firms have begun to experience dissatisfaction and is contemplating relationship termination, considering alternative suppliers or buyers and is |

beginning to communicate an intent to end the relationship.

Deterioration The firms have begun to negotiate terms for ending the relationship and/or are currently in the process of dissolving the relationship.

Again, please indicate the extent to which you agree/disagree with the following statements:

	Strongly Disagree							Strongly Agree
	1	2	3	4	5	6	7	
The firms share the same goals in the relationship.								
They contribute different capabilities to the relationship.								
They work on joint projects tailored to their needs.								
If this relationship were to end, they would be wasting a lot of knowledge that's tailored to their relationship.								
They have both gained strategic advantages over their competitors.								
They have achieved a high level of joint profits between them.								
They depend on each other for resources or outcomes that are unattainable elsewhere.								
They have compatible goals.								
They have complementary strengths that are useful to their relationship.								
If either company were to switch to a competitive buyer or vendor, they would lose a lot of the investments made in the present relationship.								
They work together to exploit unique opportunities.								
Their relationship has not resulted in strategic advantages for them.								

	Strongly Disagree							Strongly Agree
	1	2	3	4	5	6	7	
There is little joint profit generated from the relationship.								
They can easily get the same benefits or resources from their relationship with alternative buyers or vendors.	1	2	3	4	5	6	7	
They support each other's objectives.	1	2	3	4	5	6	7	
They contribute different resources to the relationship that helps them achieve mutual goals.	1	2	3	4	5	6	7	
They have gained benefits that enable them to compete more effectively in the marketplace.	1	2	3	4	5	6	7	
Both companies are able to come up with innovative solutions to problems.	1	2	3	4	5	6	7	
They have invested a great deal in building up their joint business.	1	2	3	4	5	6	7	
They have generated a lot of profits together.	1	2	3	4	5	6	7	
They have different goals.	1	2	3	4	5	6	7	
They have separate abilities that, when combined together, enable them to achieve goals beyond their individual reach.	1	2	3	4	5	6	7	
Both companies are always looking for synergistic ways to do business together.	1	2	3	4	5	6	7	
They have developed procedures, routines, and understanding tailored to their relationship.	1	2	3	4	5	6	7	
The relationship has not resulted in strategically important outcomes.	1	2	3	4	5	6	7	
They have increased joint profits shared between them.	1	2	3	4	5	6	7	
Both firms have gained benefits that would have been impossible to gain on their own.	1	2	3	4	5	6	7	

	Strongly Disagree				Strongly Agree			
	1	2	3	4	5	6	7	
We try to repair the problems that occur between us.								
We expect to continue working with this firm on a long-term basis.	1	2	3	4	5	6	7	
Our relationship with this firm is deteriorating.	1	2	3	4	5	6	7	
We try to work things out when a problem arises.	1	2	3	4	5	6	7	
Our relationship with this firm is improving.	1	2	3	4	5	6	7	

Your firm may make investments in time, energy, and/or money specifically to accommodate a particular buyer and its products. These investments would be lost if your firm switched to another buyer. Please indicate the extent to which your firm has made investments or changes specifically to accommodate this buyer.

	Not at All				Very Much		
	1	2	3	4	5	6	7
Just for this buyer we changed our...							
...product features	1	2	3	4	5	6	7
...production procedures	1	2	3	4	5	6	7
...personnel	1	2	3	4	5	6	7
...inventory and distribution	1	2	3	4	5	6	7
...policies	1	2	3	4	5	6	7
...marketing	1	2	3	4	5	6	7
...systems	1	2	3	4	5	6	7
...capital equipment and tools	1	2	3	4	5	6	7
Just for this supplier we invested time...							
...training this buyer's personnel	1	2	3	4	5	6	7
...learning this buyer's product	1	2	3	4	5	6	7
...learning this buyer's procedures	1	2	3	4	5	6	7
...researching this buyer	1	2	3	4	5	6	7

In this section, we would like to know what the supplier firm does when a problem occurs. Please complete this section with respect to the product category that you purchase from them.

Please note that the numbered responses now refer to the frequency of these behaviors instead of the degree to which you agree with statement.

When a problem occurs, how often will this firm do the following?

	hardly ever		very often					
	1	2	3	4	5	6	7	
They alert us of the problem.								
They don't appear to understand the problem.	1	2	3	4	5	6	7	
They are not cooperative.	1	2	3	4	5	6	7	
They are slow to respond to our inquiries.	1	2	3	4	5	6	7	
Their responses to our inquiries are inadequate.	1	2	3	4	5	6	7	
They are willing to negotiate a mutually agreeable solution to the problem.	1	2	3	4	5	6	7	
They decrease their purchases from us.	1	2	3	4	5	6	7	
They make hollow promises.	1	2	3	4	5	6	7	
They are aloof toward us.	1	2	3	4	5	6	7	
They give us opportunity to correct the problem.	1	2	3	4	5	6	7	
They "window dress" their efforts to improve.	1	2	3	4	5	6	7	
They expect us to pay for more than our fair share of the costs to correct the problem.	1	2	3	4	5	6	7	
They make fewer and fewer first-time purchases from us.	1	2	3	4	5	6	7	
They are unwilling to accept responsibility.	1	2	3	4	5	6	7	

	hardly ever		very often
They are unwilling to accept advice from us.	1	2	3
They often help in correcting the problem.	4	5	6
They make false accusations.	7	1	2
They provide false information.	3	4	5
They fail to tell us when their needs change.	6	7	1
They fail to provide proper notification.	2	3	4
Their representatives are rude to us.	5	6	7

THE ENVIRONMENT

This section assesses your perceptions of the external environment within the product category that you purchase from this particular supplier.

	Strongly Disagree		Strongly Agree
There is little potential for economic growth in our environment.	1	2	3
The environmental demands on us are constantly changing.	4	5	6
Customer preferences for our products vary greatly.	7	1	2
The demand for the supplier's product(s) is high.	2	3	4
Marketing practices in our industry are constantly changing.	5	6	7
Our customers are demographically similar in terms of income, profession, education, social class, etc.	1	2	3
The demand for the buyer's product(s) is high.	4	5	6

	Strongly Disagree							Strongly Agree
	1	2	3	4	5	6	7	
Our competitors' strategies have remained the same over the years.								
The top firms in our industry control the majority of the resources available in the industry.	1	2	3	4	5	6	7	
There are a lot of exploitable opportunities available to us.	1	2	3	4	5	6	7	
The product mixes in our industry changes frequently.	1	2	3	4	5	6	7	
There are a lot of small competitors in our industry.	1	2	3	4	5	6	7	
We have no problem securing the resources we need.	1	2	3	4	5	6	7	
Customer preferences in our industry are stable.	1	2	3	4	5	6	7	
Our industry is dominated by a few powerful players.	1	2	3	4	5	6	7	

YOUR BACKGROUND

How many total years of experience do you have in sales? _____ Years

How long have you been with your present company? _____ Years

Thank you for your participation in this survey. Please return this survey directly to us in the postage-paid, self-addressed envelope as soon as possible.

APPENDIX C
BUYER SURVEY: TIME 2

MEMORANDUM

TO: Company Name Buyers
FROM: Executive Name
RE: Final phase of university study

We are in the process of completing our participation in a university study on long-term relationships between manufacturing buyers and their suppliers.

One year ago you were asked to complete questionnaires on two different suppliers. Attached is the last and final set of questionnaires you will be asked to complete with respect to this study. They are similar in format to the questionnaires you completed last year. Each questionnaire should require no more than fifteen minutes each to complete.

Your completion of these questionnaires is critical, if we are to gain the maximum benefit possible from participating in this study. Please return them as soon as possible directly to the researchers.

As before, your responses and the responses of your suppliers will be kept completely confidential and averaged across the responses of many other participants so that your individual answers cannot be determined. All of the collected data will be seen only by the university researchers.

Thanks for your help.

Dear Sir/Madam,

The purpose of this survey is to assess your current relationship with the supplier firm that you reported on last year. If you are no longer purchasing the product or service that you reported on last year from this supplier, then please tell us why the relationship was terminated on the next page and return the survey to us uncompleted.

We appreciate your participation in the project thus far. The results from last year were extremely informative. Your participation in this last survey is critical for the project's success. If we can duplicate the level of participation achieved in the first round, then the study will be an enormous success from both a practitioner and an academic perspective.

The survey is just asking for your opinions and feelings, and there are no right or wrong answers. Pretests have indicated that you should be able to complete it in 15 minutes or less. The sample is limited and therefore your responses are extremely important. All of your responses will be kept completely confidential and will not be revealed to the supplier, your employer, or competitors. Any information given will be averaged across the responses of many other buyers so that no one's individual answers can be determined.

Please return the questionnaire in the enclosed postage-paid envelope as soon as possible. Support for this project is being provided by the Institute for the Study of Business Markets at Pennsylvania State University and a grant from the Marketing Science Institute. If you have any questions or concerns, feel free to contact us at the above address or by calling 904-376-1584.

Thank you in advance for your participation.

Sandy Jap
Doctoral Candidate

Barton A. Weitz
J.C. Penney Eminent Scholar/
Professor of Marketing

RELATIONSHIP BETWEEN FIRMS

Last year, you told us about your firm's relationship with the following supplier firm:

The product category that you reported on was:

Please keep this firm and product/service in mind as you complete this survey. Feel free to use either pen or pencil as you fill in your responses.

Do you still purchase this product/service from the supplier listed above? Yes No

If no, then please tell us why the relationship was terminated below and return the uncompleted survey to us.

What is the approximate annual level of purchases that you currently make or are responsible for from this supplier in the above product category?

\$ _____

How many alternative suppliers could provide this product or service? _____

Of these, how many supplier do you seriously consider when making a purchase? _____

How many of these alternative supplier do you work with on a regular basis? _____

How long have you done business with these alternative suppliers?

_____ Years or _____ Months (if less than one year)

Relationships typically evolve through a number of phases over time. Which of the following best describe your firm's relationship with this supplier? (check only one)

- | | |
|---------------|---|
| Exploration | Both firms are discovering and testing the goal compatibility, integrity, and performance of the other as well as potential obligations, benefits, and burdens involved with working together on a long-term basis. |
| Buildup | Both firms are receiving increasing benefits from the relationship and a level of trust and satisfaction has been developed such that they are more willing to become committed to the relationship on a long-term basis. |
| Maturity | Both firms have an ongoing, long-term relationship in which both are receiving acceptable levels of satisfaction and benefits from the relationship. |
| Decline | One or both firms have begun to experience dissatisfaction and is contemplating relationship termination, considering alternative suppliers or buyers and is beginning to communicate an intent to end the relationship. |
| Deterioration | The firms have begun to negotiate terms for ending the relationship and/or are currently in the process of dissolving the relationship. |

Please mark through the number that best describes your opinion. Keep in mind that there are no right or wrong answers; do not be concerned about giving different answers to questions that seem similar. There is some redundancy built into the statements to account for the fact that some people may read and interpret the statements differently. The focus of this section is still the relationship between your firm and the supplier firm.

	Strongly Disagree	Strongly Agree
The firms share the same goals in the relationship.	1 2 3 4 5 6 7	
They contribute complementary capabilities to the relationship.	1 2 3 4 5 6 7	
They work on joint projects tailored to their needs.	1 2 3 4 5 6 7	

	Strongly Disagree							Strongly Agree
	1	2	3	4	5	6	7	
If this relationship were to end, they would be wasting a lot of knowledge that's tailored to their relationship.								
They have both gained strategic advantages over their competitors.	1	2	3	4	5	6	7	
They have achieved a high level of joint profits between them.	1	2	3	4	5	6	7	
They depend on each other for resources or outcomes that are unattainable elsewhere.	1	2	3	4	5	6	7	
They have compatible goals.	1	2	3	4	5	6	7	
They have complementary strengths that are useful to their relationship.	1	2	3	4	5	6	7	
If either company were to switch to a competitive buyer or vendor, they would lose a lot of the investments made in the present relationship.	1	2	3	4	5	6	7	
They work together to exploit unique opportunities.	1	2	3	4	5	6	7	
The relationship has not resulted in strategic advantages for them.	1	2	3	4	5	6	7	
They can easily get the same benefits or resources from their relationship with alternative buyers or vendors.	1	2	3	4	5	6	7	
They support each other's objectives.	1	2	3	4	5	6	7	
They contribute different resources to the relationship that helps them achieve mutual goals.	1	2	3	4	5	6	7	
They have gained benefits that enable them to compete more effectively in the marketplace.	1	2	3	4	5	6	7	
Both companies are able to come up with innovative solutions to problems.	1	2	3	4	5	6	7	
They have invested a great deal in building up their joint business.	1	2	3	4	5	6	7	

	Strongly Disagree							Strongly Agree
	1	2	3	4	5	6	7	
They have generated a lot of profits together.								
They have different goals.	1	2	3	4	5	6	7	
They have separate abilities that, when combined together, enable them to achieve goals beyond their individual reach.	1	2	3	4	5	6	7	
Both companies are always looking for synergistic ways to do business together.	1	2	3	4	5	6	7	
They have developed procedures, routines, and understanding tailored to their relationship.	1	2	3	4	5	6	7	
The relationship has not resulted in strategically important outcomes.	1	2	3	4	5	6	7	
They have increased joint profits shared between them.	1	2	3	4	5	6	7	
Both firms have gained benefits that would have been impossible to gain on their own.	1	2	3	4	5	6	7	
By working together, they achieve things that they can't achieve individually.	1	2	3	4	5	6	7	
The firms' combined strengths outweigh their weaknesses.	1	2	3	4	5	6	7	
Both firms have an equal amount of power in the relationship.	1	2	3	4	5	6	7	
Our association with this supplier has been a highly successful one.	1	2	3	4	5	6	7	
Our relationship with this firm will last far into the future.	1	2	3	4	5	6	7	
This supplier is critical to our future performance.	1	2	3	4	5	6	7	
Our relationship with this firm is getting worse.	1	2	3	4	5	6	7	

	Strongly Disagree							Strongly Agree
	1	2	3	4	5	6	7	
When a problem occurs we make fewer and fewer first-time purchases from this supplier.								
Our company is important to the supplier's financial performance.	1	2	3	4	5	6	7	
We try to repair the problems that occur between us.	1	2	3	4	5	6	7	
We expect to continue working with this firm on a long-term basis.	1	2	3	4	5	6	7	
Our relationship with this firm is deteriorating.	1	2	3	4	5	6	7	
Our firm is dependent on this supplier.	1	2	3	4	5	6	7	
We reduce our purchases from this supplier when a problem occurs.	1	2	3	4	5	6	7	
Our relationship with this firm is improving.	1	2	3	4	5	6	7	
If we had to give the supplier a performance appraisal, it would be outstanding.	1	2	3	4	5	6	7	
We expect to terminate our relationship with this firm soon.	1	2	3	4	5	6	7	
We try to work things out when a problem arises.	1	2	3	4	5	6	7	
Overall, the results of our relationship with the supplier have fallen short of our expectations.	1	2	3	4	5	6	7	
This supplier is important to our financial performance.	1	2	3	4	5	6	7	
This supplier is dependent on our firm.	1	2	3	4	5	6	7	
Our relationship with this firm is getting better.	1	2	3	4	5	6	7	
Our firm is critical to this supplier's future performance.	1	2	3	4	5	6	7	
The supplier leaves a lot to be desired from an overall performance standpoint.	1	2	3	4	5	6	7	

Your firm may have made investments in time, energy, and/or money specifically to accommodate this particular supplier and its products. These investments would be lost if your firm switched to another supplier. Please indicate the extent to which your firm has made investments or changes specifically to accommodate this supplier.

	Not at All						Very Much
Just for this supplier we changed our...							
...product requirements	1	2	3	4	5	6	7
...production procedures	1	2	3	4	5	6	7
...personnel	1	2	3	4	5	6	7
...inventory and distribution	1	2	3	4	5	6	7
...policies	1	2	3	4	5	6	7
...marketing	1	2	3	4	5	6	7
...systems	1	2	3	4	5	6	7
...capital equipment and tools	1	2	3	4	5	6	7
Just for this supplier we invested time...							
...training this supplier's personnel	1	2	3	4	5	6	7
...learning this supplier's product	1	2	3	4	5	6	7
...learning this supplier's procedures	1	2	3	4	5	6	7
...verifying this supplier	1	2	3	4	5	6	7

In this section, we would like to know what the supplier firm does when a problem occurs. Please complete this section with respect to the product category listed on the first page. Note that the numbered responses now refer to the frequency of these behaviors instead of the degree to which you agree/disagree with statement.

	hardly ever	very often
How frequently do problems arise between your firm and the supplier firm?	1 2 3 4 5 6 7	

When a problem occurs, how often will the supplier firm do the following?

	hardly ever	very often
They alert us to the problem.	1 2 3 4 5 6 7	
They don't appear to understand the problem.	1 2 3 4 5 6 7	
They are not cooperative.	1 2 3 4 5 6 7	
They are slow to respond to our inquiries.	1 2 3 4 5 6 7	

	hardly ever							very often
	1	2	3	4	5	6	7	
Their responses to our inquiries are inadequate.								
They are willing to negotiate a mutually agreeable solution to the problem.	1	2	3	4	5	6	7	
They "nickel and dime" us.	1	2	3	4	5	6	7	
They make hollow promises.	1	2	3	4	5	6	7	
They are aloof toward us.	1	2	3	4	5	6	7	
They give us opportunity to correct the problem.	1	2	3	4	5	6	7	
They "window dress" their efforts to improve.	1	2	3	4	5	6	7	
They expect us to pay for more than our fair share of the costs to correct the problem.	1	2	3	4	5	6	7	
Their service is very poor.	1	2	3	4	5	6	7	
They are unwilling to accept responsibility.	1	2	3	4	5	6	7	
They are unwilling to accept advice from us.	1	2	3	4	5	6	7	
They often help in correcting the problem.	1	2	3	4	5	6	7	
They make false accusations.	1	2	3	4	5	6	7	
They provide false information.	1	2	3	4	5	6	7	
Their document preparation is inadequate.	1	2	3	4	5	6	7	
They fail to provide proper notification.	1	2	3	4	5	6	7	
Their representatives are rude to us.	1	2	3	4	5	6	7	

THE ENVIRONMENT

This section assesses the external environment. Please complete this section with regard to the product category listed on the first page.

Tell us about the environment around your firm's relationship with the supplier firm:

	Strongly Disagree	Strongly Agree					
	1	2	3	4	5	6	7
The environmental demands on us are constantly changing.							
The demand for the supplier's product(s) is high.	1	2	3	4	5	6	7
Marketing practices in our industry are constantly changing.	1	2	3	4	5	6	7
The product mixes in our industry change frequently.	1	2	3	4	5	6	7
The demand for the buyer's product(s) is high.	1	2	3	4	5	6	7

Tell us about your firm's environment:

	Strongly Disagree	Strongly Agree					
	1	2	3	4	5	6	7
There is little potential for economic growth in our environment.							
The environmental demands on us are constantly changing.	1	2	3	4	5	6	7
Customer preferences for our products vary greatly.	1	2	3	4	5	6	7
The demand for our product(s) is high.	1	2	3	4	5	6	7
Marketing practices in our industry are constantly changing.	1	2	3	4	5	6	7
Our customers are demographically similar in terms of income, profession, education, social class, etc.	1	2	3	4	5	6	7
Our competitors' strategies have remained the same over the years.	1	2	3	4	5	6	7

	Strongly Disagree							Strongly Agree
	1	2	3	4	5	6	7	
The top firms in our industry control the majority of the resources available in the industry.								
There are a lot of exploitable opportunities available to us.	1	2	3	4	5	6	7	
The product mixes in our industry changes frequently.	1	2	3	4	5	6	7	
There are a lot of small competitors in our industry.	1	2	3	4	5	6	7	
We have no problem securing the resources we need.	1	2	3	4	5	6	7	
Customer preferences in our industry are stable.	1	2	3	4	5	6	7	
Our industry is dominated by a few powerful players.	1	2	3	4	5	6	7	

RELATIONSHIP WITH THE REPRESENTATIVE

Last year, you reported on your individual relationship with the following person:

Do you still work with this individual? Yes No

If no, then please provide the name of the key person/contact that you currently work with:

How long have you worked with this individual?

Years or Months (if less than one year)

Please complete this section with respect to the individual that you currently work with:

	Strongly Disagree							Strongly Agree
	1	2	3	4	5	6	7	
Our promises to each other are reliable.	1	2	3	4	5	6	7	
Both of us are willing to take risks.	1	2	3	4	5	6	7	

	Strongly Disagree							Strongly Agree
	1	2	3	4	5	6	7	
We are very honest in dealing with each other.								
Both of us are willing to take chances with each other.	1	2	3	4	5	6	7	
We trust each other.	1	2	3	4	5	6	7	
We consider each other's interests when problems arise.	1	2	3	4	5	6	7	
We go out on a limb for each other.	1	2	3	4	5	6	7	
We would go out of our way to help each other out.	1	2	3	4	5	6	7	

WRAP-UP

As a final wrap-up to this study, please tell us the following about yourself:

How knowledgeable are you about the following in your firm's relationship with the supplier firm in the product category listed on the first page?

	Not Very Knowledgeable							Very Knowledgeable
	1	2	3	4	5	6	7	
... what they commonly do when a problem occurs between them								
... whether they have complementary capabilities	1	2	3	4	5	6	7	
... the degree to which they work closely to develop strategic advantages	1	2	3	4	5	6	7	
... the level of trust	1	2	3	4	5	6	7	
... the level of joint profits earned from the relationship	1	2	3	4	5	6	7	
... how similar their goals are	1	2	3	4	5	6	7	
... how dependent they are on each other	1	2	3	4	5	6	7	

	Not Very Knowledgeable	Very Knowledgeable
--	---------------------------	-----------------------

... the nature of unique investments, assets, capabilities, etc. that are used in the relationship 1 2 3 4 5 6 7

... the degree to which they have earned strategic advantages over their competitors 1 2 3 4 5 6 7

APPENDIX D
SUPPLIER SURVEY: TIME 2

Dear Company Name Supplier,

We are in the process of completing our participation in a university study on long-term relationships between manufacturing buyers and their suppliers.

One year ago you were asked to complete a questionnaire concerning your relationship with one of our buyers.

Attached is the last and final questionnaire that you will be asked to complete with respect to this study. We would appreciate it if you would complete it and return it directly to the researchers in the enclosed envelope as soon as possible. It should require no more than ten minutes to complete.

Your participation is critical, if we are to gain the maximum benefit possible from participating in this study. As before, your responses and the responses of our buyers will be kept completely confidential and averaged across the responses of many other participants so that your individual answers cannot be determined. All the collected data will be seen only by the university researchers.

Thank you for your participation and attention to this matter.

Sincerely,

Executive Name
Executive Title

Dear Sir/Madam,

The purpose of this survey is to assess your current relationship with the buyer firm that you reported on last year. If you are no longer selling the product or service that you reported on last year to this buyer, then please tell us why the relationship was terminated on the next page and return the survey to us uncompleted.

We appreciate your participation in the project thus far. The results from last year were extremely informative. Your participation in this last survey is critical for the project's success. If we can duplicate the level of participation achieved in the first round, then the study will be an enormous success from both a practitioner and an academic perspective.

The survey is just asking for your opinions and feelings, and there are no right or wrong answers. Pretests have indicated that you should be able to complete it in 10 minutes or less. The sample is limited and therefore your responses are extremely important. All of your responses will be kept completely confidential and will not be revealed to the buyer, your employer, or competitors. Any information given will be averaged across the responses of many other buyers so that no one's individual answers can be determined.

Please return the questionnaire in the enclosed postage-paid envelope as soon as possible. Support for this project is being provided by the Institute for the Study of Business Markets at Pennsylvania State University and a grant from the Marketing Science Institute. If you have any questions or concerns, feel free to contact us at the above address or by calling 904-376-1584.

Thank you in advance for your participation.

Sandy Jap
Doctoral Candidate

Barton A. Weitz
J.C. Penney Eminent Scholar/
Professor of Marketing

RELATIONSHIP BETWEEN FIRMS

Last year, you told us about your firm's relationship with the following buyer firm:

The product category that you reported on was:

Please keep this firm and product/service in mind as you complete this survey. Feel free to use either pen or pencil as you fill in your responses.

Do you still sell this product/service to the buyer listed above? _____ Yes _____ No

If no, then please tell us why the relationship was terminated below and return the uncompleted survey to us.

What is your company's approximate annual level of total sales in this product category (including sales to the above buyer)?

\$ _____

How many other firms do you sell this product or service to beside the firm listed above? _____

How long have you done business with these other firms?

_____ Years or _____ Months (if less than one year)

Relationships typically evolve through a number of phases over time. Which of the following best describe your firm's relationship with this buyer firm? (check only one)

Exploration Both firms are discovering and testing the goal compatibility, integrity, and performance of the other as well as potential obligations, benefits, and burdens involved with working together on a long-term basis.

Buildup	Both firms are receiving increasing benefits from the relationship and a level of trust and satisfaction has been developed such that they are more willing to become committed to the relationship on a long-term basis.
Maturity	Both firms have an ongoing, long-term relationship in which both are receiving acceptable levels of satisfaction and benefits from the relationship.
Decline	One or both firms have begun to experience dissatisfaction and is contemplating relationship termination, considering alternative suppliers or buyers and is beginning to communicate an intent to end the relationship.
Deterioration	The firms have begun to negotiate terms for ending the relationship and/or are currently in the process of dissolving the relationship.

Please mark through the number that best describes your opinion. Keep in mind that there are no right or wrong answers; do not be concerned about giving different answers to questions that seem similar. There is some redundancy built into the statements to account for the fact that some people may read and interpret the statements differently. The focus of this section is still the relationship between your firm and the buyer firm.

	Strongly Disagree	Strongly Agree
The firms share the same goals in the relationship.	1 2 3 4 5 6 7	
They contribute complementary capabilities to the relationship.	1 2 3 4 5 6 7	
They work on joint projects tailored to their needs.	1 2 3 4 5 6 7	
If this relationship were to end, they would be wasting a lot of knowledge that's tailored to their relationship.	1 2 3 4 5 6 7	
They have both gained strategic advantages over their competitors.	1 2 3 4 5 6 7	
They have achieved a high level of joint profits between them.	1 2 3 4 5 6 7	

	Strongly Disagree							Strongly Agree
	1	2	3	4	5	6	7	
They depend on each other for resources or outcomes that are unattainable elsewhere.	1	2	3	4	5	6	7	
They have compatible goals.	1	2	3	4	5	6	7	
They have complementary strengths that are useful to their relationship.	1	2	3	4	5	6	7	
If either company were to switch to a competitive buyer or vendor, they would lose a lot of the investments made in the present relationship.	1	2	3	4	5	6	7	
They work together to exploit unique opportunities.	1	2	3	4	5	6	7	
The relationship has not resulted in strategic advantages for them.	1	2	3	4	5	6	7	
They can easily get the same benefits or resources from their relationship with alternative buyers or vendors.	1	2	3	4	5	6	7	
They support each other's objectives.	1	2	3	4	5	6	7	
They contribute different resources to the relationship that helps them achieve mutual goals.	1	2	3	4	5	6	7	
They have gained benefits that enable them to compete more effectively in the marketplace.	1	2	3	4	5	6	7	
Both companies are able to come up with innovative solutions to problems.	1	2	3	4	5	6	7	
They have invested a great deal in building up their joint business.	1	2	3	4	5	6	7	
They have generated a lot of profits together.	1	2	3	4	5	6	7	
They have different goals.	1	2	3	4	5	6	7	
They have separate abilities that, when combined together, enable them to achieve goals beyond their individual reach.	1	2	3	4	5	6	7	

	Strongly Disagree							Strongly Agree
	1	2	3	4	5	6	7	
Both companies are always looking for synergistic ways to do business together.								
They have developed procedures, routines, and understanding tailored to their relationship.	1	2	3	4	5	6	7	
The relationship has not resulted in strategically important outcomes.	1	2	3	4	5	6	7	
They have increased joint profits shared between them.	1	2	3	4	5	6	7	
Both firms have gained benefits that would have been impossible to gain on their own.	1	2	3	4	5	6	7	
By working together, they achieve things that they can't achieve individually.	1	2	3	4	5	6	7	
The firms' combined strengths outweigh their weaknesses.	1	2	3	4	5	6	7	
Both firms have an equal amount of power in the relationship.	1	2	3	4	5	6	7	
Our association with this supplier has been a highly successful one.	1	2	3	4	5	6	7	
Our relationship with this firm will last far into the future.	1	2	3	4	5	6	7	
This buyer is critical to our future performance.	1	2	3	4	5	6	7	
Our relationship with this firm is getting worse.	1	2	3	4	5	6	7	
When a problem occurs our sales to this buyer will decrease.	1	2	3	4	5	6	7	
Our company is important to the buyer's financial performance.	1	2	3	4	5	6	7	
We try to repair the problems that occur between us.	1	2	3	4	5	6	7	
We expect to continue working with this firm on a long-term basis.	1	2	3	4	5	6	7	

	Strongly Disagree				Strongly Agree			
	1	2	3	4	5	6	7	
Our relationship with this firm is deteriorating.								
Our firm is dependent on this buyer.	1	2	3	4	5	6	7	
Our relationship with this firm is improving.	1	2	3	4	5	6	7	
If we had to give the buyer a performance appraisal, it would be outstanding.	1	2	3	4	5	6	7	
We expect to terminate our relationship with this firm soon.	1	2	3	4	5	6	7	
We try to work things out when a problem arises.	1	2	3	4	5	6	7	
Overall, the results of our relationship with the buyer have fallen short of our expectations.	1	2	3	4	5	6	7	
This buyer is important to our financial performance.	1	2	3	4	5	6	7	
This buyer is dependent on our firm.	1	2	3	4	5	6	7	
Our relationship with this firm is getting better.	1	2	3	4	5	6	7	
Our firm is critical to this buyer's future performance.	1	2	3	4	5	6	7	
The buyer leaves a lot to be desired from an overall performance standpoint.	1	2	3	4	5	6	7	

Your firm may have made investments in time, energy, and/or money specifically to accommodate this particular buyer and its needs. These investments would be lost if your firm switched to another buyer. Please indicate the extent to which your firm has made investments or changes specifically to accommodate this buyer.

	Not at All			Very Much		
Just for this buyer we changed our...						
...product features	1	2	3	4	5	6
...production procedures	1	2	3	4	5	6
...personnel	1	2	3	4	5	6
...inventory and distribution	1	2	3	4	5	6
...policies	1	2	3	4	5	6
...marketing	1	2	3	4	5	6
...systems	1	2	3	4	5	6
...capital equipment and tools	1	2	3	4	5	6
Just for this supplier we invested time...						
...training this supplier's personnel	1	2	3	4	5	6
...learning this supplier's product	1	2	3	4	5	6
...learning this supplier's procedures	1	2	3	4	5	6
...verifying this supplier	1	2	3	4	5	6

In this section, we would like to know what the buyer firm does when a problem occurs. Please complete this section with respect to the product category listed on the first page. Note that the numbered responses now refer to the frequency of these behaviors instead of the degree to which you agree/disagree with statement.

	hardly ever			very often		
How frequently do problems arise between your firm and the buyer firm?	1	2	3	4	5	6

When a problem occurs, how often will the buyer firm do the following?

	hardly ever			very often		
They alert us to the problem.	1	2	3	4	5	6
They don't appear to understand the problem.	1	2	3	4	5	6
They are not cooperative.	1	2	3	4	5	6
They are slow to respond to our inquiries.	1	2	3	4	5	6

	hardly ever							very often
	1	2	3	4	5	6	7	
Their responses to our inquiries are inadequate.								
They are willing to negotiate a mutually agreeable solution to the problem.	1	2	3	4	5	6	7	
They decrease their purchases from us.	1	2	3	4	5	6	7	
They make hollow promises.	1	2	3	4	5	6	7	
They are aloof toward us.	1	2	3	4	5	6	7	
They give us opportunity to correct the problem.	1	2	3	4	5	6	7	
They "window dress" their efforts to improve.	1	2	3	4	5	6	7	
They expect us to pay for more than our fair share of the costs to correct the problem.	1	2	3	4	5	6	7	
They make fewer and fewer first-time purchases from us.	1	2	3	4	5	6	7	
They are unwilling to accept responsibility.	1	2	3	4	5	6	7	
They are unwilling to accept advice from us.	1	2	3	4	5	6	7	
They often help in correcting the problem.	1	2	3	4	5	6	7	
They make false accusations.	1	2	3	4	5	6	7	
They provide false information.	1	2	3	4	5	6	7	
They fail to tell us when their needs change.	1	2	3	4	5	6	7	
They fail to provide proper notification.	1	2	3	4	5	6	7	
Their representatives are rude to us.	1	2	3	4	5	6	7	

THE ENVIRONMENT

This section assesses the external environment. Please complete this section with regard to the product category listed on the first page.

Tell us about the environment around your firm's relationship with the buyer firm:

	Strongly Disagree	Strongly Agree
The environmental demands on us are constantly changing.	1 2 3 4 5 6 7	
The demand for the supplier's product(s) is high.	1 2 3 4 5 6 7	
Marketing practices in our industry are constantly changing.	1 2 3 4 5 6 7	
The product mixes in our industry change frequently.	1 2 3 4 5 6 7	
The demand for the buyer's product(s) is high.	1 2 3 4 5 6 7	

Tell us about your firm's environment:

	Strongly Disagree	Strongly Agree
There is little potential for economic growth in our environment.	1 2 3 4 5 6 7	
The environmental demands on us are constantly changing.	1 2 3 4 5 6 7	
Customer preferences for our products vary greatly.	1 2 3 4 5 6 7	
The demand for our product(s) is high.	1 2 3 4 5 6 7	
Marketing practices in our industry are constantly changing.	1 2 3 4 5 6 7	
Our customers are demographically similar in terms of income, profession, education, social class, etc.	1 2 3 4 5 6 7	
Our competitors' strategies have remained the same over the years.	1 2 3 4 5 6 7	

	Strongly Disagree							Strongly Agree
	1	2	3	4	5	6	7	
The top firms in our industry control the majority of the resources available in the industry.								
There are a lot of exploitable opportunities available to us.	1	2	3	4	5	6	7	
The product mixes in our industry changes frequently.	1	2	3	4	5	6	7	
There are a lot of small competitors in our industry.	1	2	3	4	5	6	7	
We have no problem securing the resources we need.	1	2	3	4	5	6	7	
Customer preferences in our industry are stable.	1	2	3	4	5	6	7	
Our industry is dominated by a few powerful players.	1	2	3	4	5	6	7	

RELATIONSHIP WITH THE REPRESENTATIVE

Last year, you reported on your individual relationship with the following person:

Do you still work with this individual? Yes No

If no, then please provide the name of the key person/contact that you currently work with:

How long have you worked with this individual?

 Years or Months (if less than one year)

Please complete this section with respect to the individual that you currently work with:

	Strongly Disagree							Strongly Agree
	1	2	3	4	5	6	7	
Our promises to each other are reliable.	1	2	3	4	5	6	7	
Both of us are willing to take risks.	1	2	3	4	5	6	7	

	Strongly Disagree							Strongly Agree
	1	2	3	4	5	6	7	
We are very honest in dealing with each other.								
Both of us are willing to take chances with each other.	1	2	3	4	5	6	7	
We trust each other.	1	2	3	4	5	6	7	
We consider each other's interests when problems arise.	1	2	3	4	5	6	7	
We go out on a limb for each other.	1	2	3	4	5	6	7	
We would go out of our way to help each other out.	1	2	3	4	5	6	7	

WRAP-UP

As a final wrap-up to this study, please tell us the following about yourself:

How knowledgeable are you about the following in your firm's relationship with the buyer firm in the product category listed on the first page?

	Not Very Knowledgeable							Very Knowledgeable
	1	2	3	4	5	6	7	
... what they commonly do when a problem occurs between them								
... whether they have complementary capabilities	1	2	3	4	5	6	7	
... the degree to which they work closely to develop strategic advantages	1	2	3	4	5	6	7	
... the level of trust	1	2	3	4	5	6	7	
... the level of joint profits earned from the relationship	1	2	3	4	5	6	7	
... how similar their goals are	1	2	3	4	5	6	7	
... how dependent they are on each other	1	2	3	4	5	6	7	

	Not Very Knowledgeable	Very Knowledgeable
--	---------------------------	-----------------------

... the nature of unique investments, assets, capabilities, etc. that are used in the relationship

... the degree to which they have earned strategic advantages over their competitors

BIOGRAPHICAL SKETCH

Sandy Jap was born in Bandung, Indonesia. She immigrated to the states with her parents at a young age and grew up in Ohio and Indiana and then spent her undergraduate years at the University of Florida. Her original intentions were to major in finance and work on Wall Street, but after her first marketing class and a bad experience with numbers and formulas, she became a marketer.

After graduation she worked in bank marketing and saw and experienced all aspects of marketing from strategy and research to direct sales and public relations. She also worked in sales for a rattan manufacturing company in the Far East. She attended trade shows, negotiated with buyers, and coordinated all aspects of the distribution activities. She struggled to optimally manage her relationships with various players in the channel.

After joining the Ph.D. program, she worked for Bart Weitz, who promptly set her to work analyzing dyadic channel relationship data and encouraged her to read every possible piece of literature that could bear on channel management problems. To this day, she is still pursuing the problem of how to efficiently and profitably manage the channel, though now she does it by choice, not just to satisfy an employer.

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.

Barton A. Weitz
Barton A. Weitz, Chair
J.C. Penney Eminent Scholar
of Marketing

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.

Richard J. Lutz
Richard J. Lutz
Professor of Marketing

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.

John G. Lynch, Jr.
John G. Lynch, Jr.
Graduate Research Professor of
Marketing

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.

Steve M. Shugan
Steve Shugan
Russell Berrie Eminent Scholar
of Marketing

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate,, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.

Henry Tosi

Henry Tosi
Professor of Management

This dissertation was submitted to the Graduate Faculty of the Department of Marketing in the College of Business Administration and to the Graduate School and was accepted as partial fulfillment of the requirements for the degree of Doctor of Philosophy.

August 1995

Dean, Graduate School

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